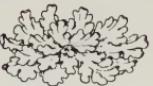






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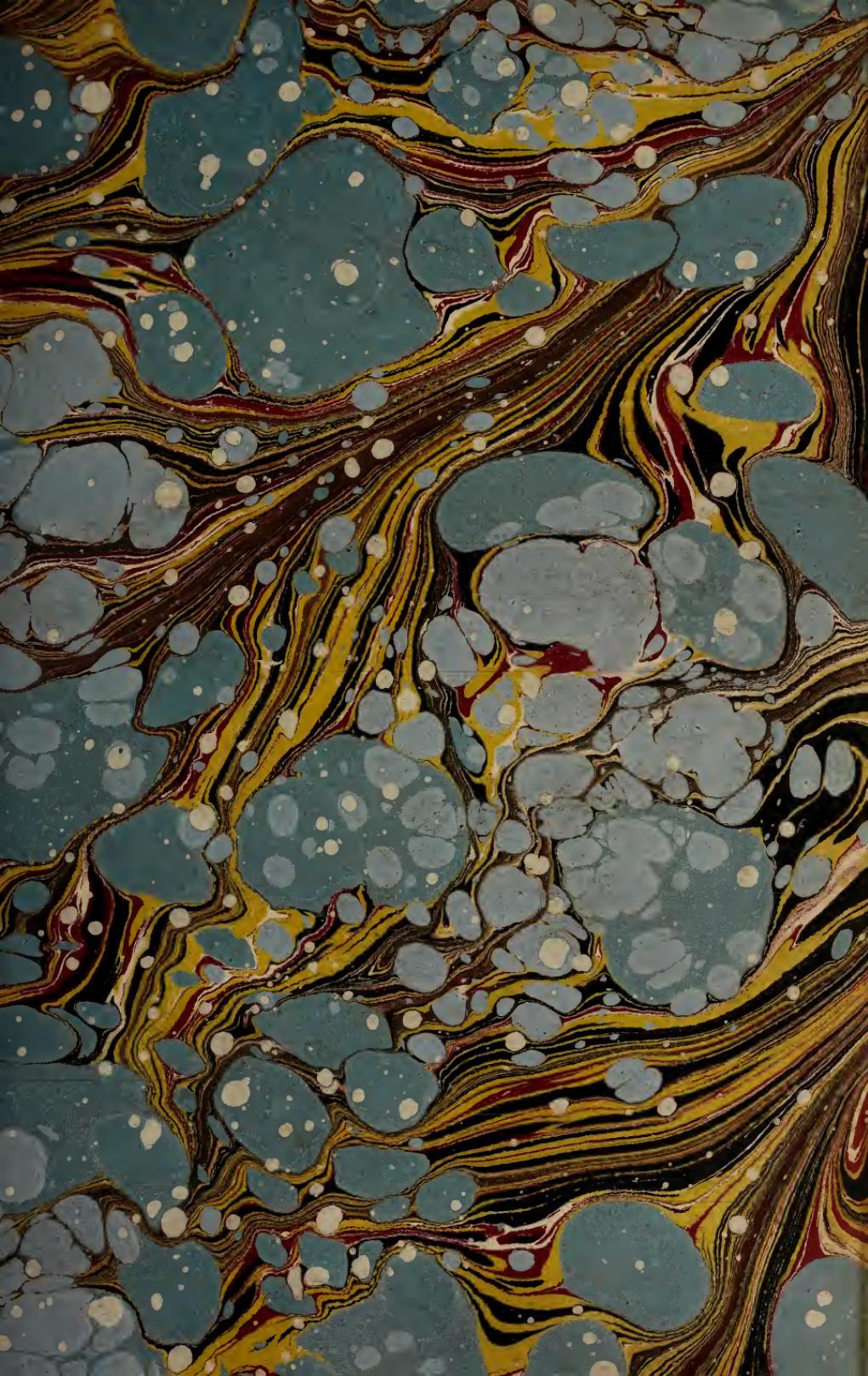


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# Grævillæa,

A QUARTERLY RECORD OF

## CRYPTOGAMIC BOTANY AND ITS LITERATURE.

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EDITED BY M. C. COOKE, M.A., A.L.S.,

*Author of "Handbook of British Fungi," "Illustrations of British Fungi," "Fungi, their uses," &c., "Rust, Smut, Mildew, and Mould," "British Fresh Water Algae," "British Desmids," &c., &c.*

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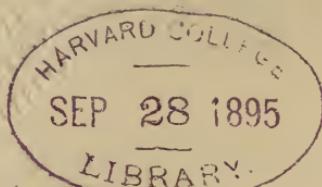
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# Grevillea.

A QUARTERLY RECORD OF CRYPTOGAMIC BOTANY  
AND ITS LITERATURE.

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## NEW ZEALAND FUNGI.

By M. C. COOKE.

**Agaricus (Volvaria) primulinus, Cke. & Mass.**

Pileo carnoso, molli, e campanulato expanso (2 unc. lat.) innato-fibrilloso, subviscoso, disco purpureo, margine citrino, stipite farcto, deorsum leniter incrassato (2-3 unc. long), citrino, glabro; volva adnata, margine libero, ochraceo, lamellis liberis, ventricosis, palido citrinis, sporis ellipticis, glabris, carneis ( $10 \times 6 \mu$ ).

On the ground. New Zealand. (Berggren 136.)

**Agaricus (Naucoria) aurora, Cke. & Mass.**

Pileo carnosulo, e campanulato convexo, obtuse umbonato, aureo, glabro ( $1-1\frac{1}{2}$  unc. lat.), stipite subcavo, cylindrico, glabro, æquali, subflexuoso (3 unc. long, 3 lin. crass), pallidiore; lamellis subliberis, postice rotundatis, latis, cinnamomeis, sporis  $7-8 \times 4 \mu$ .

On the ground. New Zealand. (Berggren 134.)

Gregarious.

**Agaricus (Naucoria) galanthinus, Cke. & Mass.**

Pileo tenui, carnosulo, campanulato, vix uncialis, obtuse umbonato, lævi, albido, margin incurvo, plicato, sublobato; stipite tenui, cylindrico (2-3 unc. long, 2 lin. crass), fistuloso, glabro, albo, lamellis adnexis, subconfertis, cinnamomeis. Sporis ellipticis,  $12-6 \mu$ .

On the ground. New Zealand. (Berggren 142.)

Allied to *Agaricus nasutus*, Kalch.

**Agaricus (Stropharia) lepiotæformis, Cke. & Mass.**

Pileo carnoso, campanulato, obtuse umbonato (2-3 unc. diam.), albido-ochraceo, squamis innatis ornato, margine tenui, flocculoso; stipite cavo, æquali, albido, glabro (3 in. long  $\frac{1}{3}$  unc. crass), annulo tenui, fugaci, lamellis rotundato-adnatis, antice attenuatis, subconfertis, brunneo-fuscis. Sporis amygdaloideis,  $8-10 \times 5 \mu$ .

On the ground. New Zealand. (Berggren 39.)

**Polyporus (Hispidi) setiger, Cke.**

Pileo dimidiato vel reniformi, carnoso, molli, strigoso, cervino (1-2 unc. diam.), intus fibroso, candido; hymenio albo, leniter concavo, margine acuto. Tubulis elongatis. Poris minutis, subrotundis, dissepimentis tenuissimis.

On rotten logs. New Zealand. (Colenso 517.)

**Polyporus (Hispidi) atrostrigosus, Cke.**

Pileo dimidiato, carnosu, postice effuso, olivaceo-fuligineo; pilis strigosis adpressis virgato, margine acuto, contextu albo, tubulis elongatis, poris albis, minutis, rotundatis, dissepimentis tenuibus.

On stumps, etc. New Zealand. (*Colenso* 522.)

With somewhat the appearance of a *Polystictus*, but *anodermeous*.

Pileus 1-2 inches or more diam., half an inch thick behind.

**Craterellus insignis, Cke.**

Erectus, cæspitosus; pileo flabelliformi, alutaceo (ad 1 unc. lato), margine lobato-crenulato, striato, stipite gracili ( $\frac{1}{2}$ -1 unc. long.), concolori, sursum in pileo expanso, deorsum attenuato. Hymenio ceraceo, rugoso, obscuriori. Sporis ovalibus,  $2-3 \times 1\frac{1}{2} \mu$ , fuscocyaninis.

On decayed stump. New Zealand. (*Colenso* 518.)

**Clavaria humilis, Cke.**

Gregaria, pusilla, alba, simplex, vel parce ramoso-incisa, laevis, nuda, glabro, stipite brevi, vix distincte, infra attenuato.

On rotten wood amongst moss. Maingaroa. New Zealand. (*Berggren* 398).

About half an inch high.

**Pistillina stilboidea, Cooke.** Crinula stilboidea, *Cooke in Herb Kew.*

Erumpens, minuta, carnosa, gregaria, tota pallide ochracea. Clavulis erectis, capitatis (vix mm. alt.), glaberrimis capitulo globoso-depresso, cavo, hymeniiifero ( $\frac{1}{4}$ -1 mm. diam.) Stipite cylindrico, æquali, solido, pruinoso ( $1\frac{1}{2}$  mm. long.), ad basim cupulato-volvato; basidiis cylindrico-clavulatis, hyalinis, sporis ovatis, hyalinis,  $4 \times 3 \mu$ .

On leaves of *Panax*. New Zealand. (*Berggren* 275, *Colenso* 423.)

It scarcely seems to differ from *Clavaria* in structure, but the hollow globose heads and cupulate base of the stem appear to separate it from that genus.

To this genus the following must also be referred:—

**Pistillina paradoxa, B. & C.**

Crinula paradoxa, B. & C. in *Rav. Fungi Car.* Exs iii., 35. *Rav. Fungi Amer.* No. 399. *Thuemen Myc. Univ.* 208. *Ellis N.A. Fungi* No. 23.

On living leaves of *Quercus*. United States.

**Uromyces azorellæ, Cke.**

Soris plerumque elongatis, bullatisque, in petiolis, in foliisque rarioribus, fuscis, pulverulentis. Teleutosporis ovatis, laevibus, breviter pedicellatis, episporio ad apicem incrassato,  $12 \times 8 \mu$ .

On leaves and petioles of *Pozoa trifoliata*. New Zealand. (*Colenso* 866.)

**Puccinia Coprosmae, Cke.**

Hypophyllis. Maculis orbicularibus (1 c.m.) fuscis. Soris congestis, convexis, umbrinatis, compactis. Teleutosporis ellipticis,

compressis, difformibusque, constrictis, cellulis inferioribus elongatis, hyalino-fuscis, pedicellis abbreviatis ( $028\text{--}03 \times 01$  mm.).

On leaves of *Coprosma lucida*, Stewart Island. New Zealand. (Kirk 138.)

**Uredo compositarum**, var. *Celmisiae*.

Spores pale, verruculose,  $26\text{--}30 \times 22 \mu$ .

On leaves of *Celmisia longiflora*. New Zealand. (Colenso 777.)

**Uredo Acaciæ**, Cke.

Soris bullatis, plerumque caulinolis, fuscis, elongatis, difformibus. Uredosporis subglobosis, lævibus, circa  $18 \mu$  diam., pedicellis hyalinis diffluentibus suffultis.

On living young twigs of *Acacia*. New Zealand. (Colenso 1050.)

**Didymospharella filicina**, Cke.

Sparsa, tecta. Peritheciis globosis, atris, minutis, ostiolis papillatis; ascis cylindraceis. Sporidiis uniseriatis, ovalibus, medio septatis, nec constrictis, fuscis,  $8 \times 5 \mu$ .

On *Pteris* stems. New Zealand. (Colenso 307.)

**Læstadia hepaticarum**, Cke.

Peritheciis minutis, demum semiemersis, atris, subglobosis, poro pertusis. Ascis pyriformibus, octosporis. Sporidiis ellipticis, hyalino-fuscis, continuis,  $5 \times 3 \mu$ .

On *Hepaticæ*. New Zealand. (Colenso 807.)

**Sphærella junciginea**, Cke.

Peritheciis in maculis orbicularibus gregariis atris, parenchymate immersis, in acervulos elongatos phyllachoriformes, epidermide nigrificate velatos, plerumque subparallele aggregatis, sphæroideis, demum rima longitudinaliter exposita. Ascis cylindraceis, octosporis, sporidiis subfusiformibus, didymis, medio vix constrictis, rectis curvulisve, luteo-hyalinis ( $012\text{--}014 \times 003\text{--}0035$  mm.).

On culms of *Juncus vaginatus*. Stewart Island, New Zealand. (Kirk 207.)

Closely allied to *Sph. phyllachoroides*, Sacc., but forming definite spots.

**Phoma Colensoi**, Cke.

Peritheciis per corticem erumpentibus, gregariis vel sparsis, subglobosis, atris, sporulis ovalibus, continuis, hyalinis,  $3 \times 2 \mu$ .

On twigs of poplar. New Zealand. (Colenso 286.)

**Asteromella myriadea**, Cke.

Peritheciis minutissimis, numerosis, hypophyllis, maculam obscuram efficientibus, dense gregariis, globosis, emersis, atris. Sporulis cylindraceis, utrinque rotundatis, rectis vel paullum, curvulis,  $12 \times 2\text{--}3 \mu$ , hyalinis.

On coriaceous leaves. New Zealand. (Colenso 432.)

**Sphæronema Solandri**, Cooke.

Peritheciis gregariis, cylindricis, subtruncatis, atris, lævibus; sporulis ovatis, hyalinis,  $3\text{--}5 \times 2 \mu$ .

On wood of *Fagus Solandri*. New Zealand. (Kirk 32.)

**Coniothecium subglobosum, Cke.**

Epiphyllum, gregarium vel sparsum, punctiforme, nigrum. Pustulis applanatis, planis, sine peritheciis, epidermide nigrofacta tectis. Sporis subglobosis (.008-.01 mm. diam.) ; obscure septatis, opacis, atro brunneis, asperulis.

On leaves of monocotyledonous plant growing in "Tara" swamps. Roritonga.

**Chætomella eucrypta, Cke. & Mass.**

Peritheciis immersis, demum erumpentibus, membranaceis, olivaceis, saepe subcupularibus, setosis; setis paucis, strictis, septatis; sporulis amygdaloideis, atro-olivaceis,  $16 \times 10 \mu$ , plerumque ad basim hyalino-apicenlatis.

On dead leaves of *Knightia excelsa*. New Zealand. (Colenso 864-1043.)

**Sphaeronemella filicina, Cke. & Mass.**

Peritheciis cylindricis (1 mm. long) carneis, apicem perforatis, superficialibus, sparsis. Sporulis continua, ovalibus, hyalinis,  $3 \times 2 \mu$ .

On *Hymenophyllum*. New Zealand. (Colenso 786.)

**Camarosporium pusillum, Cke.**

Sparsa. Peritheciis punctiformibus, minutis, membranaceis, epidermide tectis, sporulis ellipticis, irregularibus, utrinque obtusis, 4-5 septatis, cellulo uno altero longitudinaliter divisus, fuscis,  $20-30 \times 8 \mu$ .

On stems and receptacles of *Mesembryanthemum*. New Zealand. (Colenso 291.)

**Cercospora aristoteliae, Cke.**

Hypophyllis. Maculis brunneis, suborbicularibus, roseo-cinctis. Hyphis fasciculatis, brevibus, fasciculatis, conidiis cylindraceis, ad apicem subattenuatis,  $60-70 \mu$  long,  $3-4 \mu$  lat.; multi-nucleatis, spurieque septulatis, hyalinis.

On leaves of *Aristotelia racemosa*. New Zealand. (Colenso 857.)

**Fusarium elongatum, Cke.**

Sporodochiis erumpentibus, carniosis, convexis, compactis, aurantio-rubellis. Hyphis tenuibus, ramulosis, stipatis, conidiis in ramulorum apice insidentibus, tenuis, elongatis, fusiformibus, paullum curvatis, acutis 5-7 septatis, hyalinis  $60-70$ , saepe  $80 \mu$  long,  $2-3 \mu$  crass.

On twigs. New Zealand. (Colenso 538.)

**Fusarium carneo-roseum, Cke.**

Erumpens, tuberculæforme, carneo-roseum. Sporis fusiformibus, curvulis, hyalinis, 3-5 septatis, pallide roseotinctis ( $.045-.05 \times .005$ , mm.)

On bark. New Zealand. (Kirk 143.)

Probably the conidia of *Nectria otagensis*, Curr.

## AUSTRALIAN FUNGI.

By M. C. COOKE.

### **Agaricus (Entoloma) galbineus, Cke. & Mass.**

Totus sulfureus, pileo leviter carnosus, e convexo expanso, late umbonato (1-2 unc. lat), sulfureo, umbone croceo, udo, glabro; stipite æquali, fibriloso, concolori, fistuloso (2 unc. long, 2-3 lin. crass.), lamellis leviter adnexis, ventricosis, pallidis, sporis roseis, globoso-angulatis,  $10\ \mu$  diam.

On the ground. Walhalla. (*Tisdall* 48.)

### **Agaricus (Leptonia) quinquecolor, Cke. & Mass.**

Pileo membranaceo, convexo, glabro, subvirgato, margine flavidio, disco lateritio-fusco, striis roseo-tinctis (subuncialis), stipite cylindrico, æquali, vel leniter sursum attenuato, fistuloso, badio, deorsum alboflocculoso (circa 2 unc. long 1 lin. crass.), plerumque cæspitoso, lamellis sinuato adnatis, roseis, sporis globosis, asperulis,  $8-10\ \mu$ .

On black loam. Walhalla. (*Tisdall* 54.)

### **Asteromella Acaciae, Cke.**

Peritheciis numerosissimis, maculam atram efficientibus, dense congestis, minutis (vix  $25\ \mu$  excedentibus) atris, membranaceis, poro pertusis. Sporulis arcte ellipticis, continuis, hyalinis, rectis,  $2\frac{1}{2} \times 1\ \mu$ .

On phyllodes of Acacia. Wedderburn. (*Martin* 506.)

### **Septoria Martinii, Cke.**

Maculis epiphyllis, griseis, confluentibus, atrocinctis; peritheciis punctiformibus, globoso-depressis, membranaceis, pertusis. Sporulis cylindraceis, curvulis vel flexuosis,  $20-40 \times 3\ \mu$ , multo-guttulatis demum 3-5 septatis, hyalinis.

On leaves of *Senecio Bedfordii*. Victoria. (*Mrs. Martin* 461.)

Allied to *S. anaxæa*, Sacc.

### **Hyaloceros dilophospora, Cooke.**

Epiphyllis. Acervulis gregariis, minutis, fuscis, erumpentibus, convexis subangulatis, centro irregulariter fissurato, stromate submucoso; conidiis elongatis, subfusoides,  $25 \times 4\ \mu$ , leniter curvatis triseptatis, ad septa non constrictis pallide fuscis, utrinque setis binis divergentibus, hyalinis, ornatis.

On dead leaves of *Leptospermum scoparium*. Port Philip. (*C. French, jun.*)

This species would constitute a subsection of the genus, having two setæ at each end of the spore, instead of one.

## SOME AFRICAN FUNGI.

By M. C. COOKE.

**Agaricus (Crepidotus) Inandæ, Cooke.**

Pileo carnosulo, molli, laterali, reniformi, sessili, villoso, ochraceo, siccitate fusco, mycelio ampio flavide-pallidove intertexto, lamellis latis, vix confertis, cinnamomeis. Sporis subglobosis (.004 mm. diam.)

On bark. Inanda, Natal. (*J. M. Wood* 680).

Pileus half-an-inch to an inch broad, sessile, reniform, villose, especially behind, with flexuous tawny hairs; mycelium yellowish or pallid, sometimes interwoven into a byssoid stroma.

**Aecidium Tylophoræ, Cooke.**

Epiphyllum et caulinum. Maculis purpureis, orbicularibus, vel in caulam effusis. Pseudo-peridiis semi-immersis, margine albo, lacerato. Sporis subglobosis, aurantiis.

On *Tylophora*. Natal. (*Wood* 694).

When on the stems twisting and contorting them considerably.

**Uredo Balsamodendri, Cooke.**

Hypophylla. Maculis indeterminatis, brunneis, soris sparsis, minutis, fuscis, pulverulentibus; uredosporis ellipticis, plerumque apicem versus granulato-verrucosis, fuscis,  $35 \times 18 \mu$ .

On leaves of *Balsamera*. Durban. (*J. M. Wood* 689).

**Uredo cryptolepidis, Cooke.**

Hypophylla. Maculis obsoletis, soris minimis, pallide fuscis, 5-10 aggregatis, mox epidermide fissa cinctis; uredosporis globosis, asperulis, pallidis,  $18 \mu$  diam.

On leaves of *Cryptolepis*. Inanda. (*J. M. Wood* 672.)

**Uromyces anomathecæ, Cooke.**

Amphigena. Soris subtransversalis ellipticis, brunneis, compactis, minutis, teleutosporis pyriformibus, vel subtriangularis, apice incrassatis, badio-fuscis, deorsum pallidioribus, breviter stipitatis, episporio lœvi,  $25 \times 25 \mu$ .

On *Anomatheca cruenta*. Natal. (*J. M. Wood* 693.)

**Passalora protearum, Kalch & Cooke MSS.**

Epiphylla. Maculis irregularibus, sordidis. Hyphis fasciculatis, brevibus, conidiis subfusoides, acrogenis, uniseptatis, loculo superiori crassioribus, pallidis,  $35-40 \times 7 \mu$ .

On leaves of *Protea argentea*. Cape of Good Hope.

**Stilbum physarioides, Kalch, Sacc. Syll. No. 2731.**

Stipitibus sparsis, vitellinis, brevibus, deorsum incrassatis; capitulo subgloboso, laxo, albido; hyphis furcatis, vel breviter ramulosis. Conidiis ellipticis, hyalinis,  $4-5 \times 2 \mu$ .

On herb stems. Cape of Good Hope.

***Leptosphaerella Helichrysi*, Cooke.**

Hypophylla, superficialis. Peritheciis subglobosis, opacis, atris, in tomento nidulantibus, ostiolo impresso, pertuso. Ascis clavatis. Sporidiis congestis, sublanceolatis, triseptatis, rectis, curvulisve, fuligineis ( $0.05\text{--}0.055 \times 0.008$  mm.)

On under surface of leaves of *Helichrysum*. Natal, (Wood 683.)

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## SOME ASIATIC FUNGI.

By M. C. COOKE.

***Agaricus (Hebeloma) Thomasinus*, Cooke.**

Pileo carnoso, subviscido, convexo, expanso, obtuso (6-8. in diam.), ochraceo-fusco, margine tenui, lacerato. Stipite crasso, ruguloso, deorsum incrassato (5-6 in. long,  $1\frac{1}{2}$  in. crass.), cum pileo concolore; lamellis lanceolatis, postice attenuatis, latis, vix confertis, pallidis, demum umbrinis.

Growing in a cactus-hedge. Belgaum, India. (Mrs. Patteshall Thomas.)

***Agaricus (Stropharia) mephistopheles*, Cooke.**

Pileo carnoso, campanulato-convexo, late umbonato ( $1\frac{1}{2}\text{--}2$  in. diam.), igneo-rubro, verrucis deciduis concoloribus adsperso, margine appendiculato, annulo superiori, patente; stipite tenui, cum pilei concolore, sub-glabro (2-3 in. long, 2-3 lines thick); lamellis lanceolatis, affixis, subconfertis, umbrino-nigricantibus.

On the ground. Belgaum, India. (Gen. Hobson, No. 11-14.)

Allied to *A. aureo-fulva*, B., but differing in habit and habitat.

***Phyllachora japonica*, Cke. & Mass.**

Erumpens, oblonga vel confluens (1-2 mm. diam.), grisea, convexo-applanata, tenuis; cellulis minutis immersis, nec prominulis. Ascis cylindraceis sporidiis uniserialibus, ellipticis, continuis, hyalinis,  $7\text{--}8 \times 4 \mu$ .

On stems of *Vaccinium Japonica*. Patung District, China. (Dr. A. Henry.)

Bearing a general resemblance externally to *Botryosphaeria dothidea*.

***Sacidium depazeoides*, Cooke.**

Peritheciis in maculas suborbicularibus vel confluentibus, ochraceis, insidentibus, membranaceis, demum sursum dissilientibus. Sporulis globosis, subglobosive, hyalinis,  $12 \mu$  diam.

On leaves of *Aspidopteris caudata*, India.

## NEW BRITISH FUNGI.

By M. C. COOKE.

(Continued from Vol. XVIII., p. 74.)

**Pleospora junciginea**, Cooke.

Perithecia scattered, erumpent, globose, black, papillate, at length cracking, and throwing off fragments of the cuticle. Ascii cylindrical, octosporous. Sporidia uniseriate, elliptical, constricted at the middle, 5-septate, and muriform, amber yellow,  $25-30 \times 10-12 \mu$ .

On *Juncus*. North Wootton; also California (Harkness, No. 1301).

**Pleospora sparganiæ**, Cke.

Perithecia scattered, immersed in the parenchyma, covered by the cuticle, rather small, globose, minutely papillate. Ascii clavate. Sporidia biseriate, lanceolate, 3-4 septate, constricted, median cell longitudinally divided, yellowish-brown,  $30 \times 8 \mu$ .

On *Sparganium*. North Wootton 19.

**Phyllosticta Draconis**, Berk. & Welw. *Crypt. Lusit.*, Sacc. Syll. No. 334.

Spots on both surfaces, irregular, pallid, with a purple margin. Perithecia minute, pale, very thinly membranaceous, seated on the spots, but scarcely visible to the naked eye. Sporules minute, elliptical, continuous ( $7 \times 3 \mu$ ), on very short basidia.

On leaves of *Dracæna terminalis*, and *D. Cooperi* in conservatories.

**Diplodia acerina**, Cke. & Mass. (*cum. Leptorrhaphis acerina* Rehm. Asco, No. 197).

Peritheciis tectis, subsparsis, globuloso papillatis, atris, vix conspicuis. Sporulis constricto-didymis, brunneis, utrinque rotundatis,  $17 \times 9 \mu$ .

On *Acer campestris* bark. Germany; Britain.

**Isariopsis acanthacearum**, Cooke.

Hypophyllous. Forming minute, somewhat compact, semi-orbicular tufts, which are at first pale cinereous, becoming fuliginous, or nearly black. Hyphæ slender, septate, flexuous, interwoven, brown. Conidia fusiform, triseptate, hyaline ( $.02-022 \times .005$  mm.).

On leaves of *Eranthemum*. Bristol (Dewar). On leaves of *Dædalacanthus nervosus*. Exeter (E. Parfitt).

**Glaeosporium mezereum**, Cooke.

Epiphytal. Pustules gregarious, small, brown, with a paler centre, sometimes confluent; sporules elliptical, or nearly almond-shaped, with 1-2 or more guttules ( $15 \times 6 \mu$ ), continuous, hyaline, at first with very short sporophores.

On fading leaves of *Daphne mezereum*. Kew Gardens.

## INTRODUCTION TO FRESH WATER ALGÆ.

An unpretending little volume, under this title, has lately been published in the "International Scientific Series," and it is the first time that a handy manual of Fresh Water Algæ has been published, with descriptions of all the British species, and figures of the genera, at the reasonable price of five shillings. It will surprise some of our readers that the "Journal of Botany" could have admitted to its pages such a violent panegyric as we hereby re-print for their edification.

"The author of this book deserves the highest credit for his good intentions. To furnish the public with a book of handy size containing descriptions of the British Fresh Water Algæ, and figures of all the genera, with an introduction to their study—all this at a reasonable price—is an aim of the most worthy kind. The plan of the book and the idea of producing it are most creditable to Mr. Cooke, but he should have induced someone else to carry the matter into effect.

"Soon after the publication of Cooke's 'British Fresh Water Algæ,' it was shown by Dr. Nordstedt in these pages ('Journ. Bot.', 1887, 355), and by other writers elsewhere, that Mr. Cooke's claims to illustrate this subject are of the most slender character.\* Mr. Cooke's methods of book production were then laid bare, and the character of many of his figures was properly described by the most eminent living authority on this subject. It is, of course, impossible for us to know whether Mr. Cooke took that lesson to heart, and has prepared the present volume as some sort of apology for his more ambitious work, or whether he remains 'of the same opinion still.' Judging from the book before us, the latter view is much the more likely one. In the Introduction, p. 6, Mr. Cooke says:—'The historical review may be briefly summarized by dividing it into three epochs, of about forty years' duration for each, the first being limited by the publication of Dillwyn's "Confervæ," the second by Hassall's "Fresh Water Algæ," and the third by Cooke's "British Fresh Water Algæ." ' Here is an author who refers to his own book as an epoch-making one! and such a book! Phycologists live in perilous times when Cooke's 'British Fresh Water Algæ' marks an epoch.

"Those who know Mr. Cooke's numerous and varied writings are familiar with his refreshing habit of speaking out the faith that is in him without deference to authority, and with hard words for those who may excite his wrath. His chapter on 'Classification' in this book contains a scathing reference to Mr. A. W. Bennett's classification of Algæ, and his chapter on what is here called the 'Dual Hypothesis' is to be noted for its outspoken language. Mr. Cooke must be aware that in this matter he lives in a very

\* This is a misrepresentation, as the communication quoted does not allude to "British Fresh Water Algæ" at all, but to a subsequent work.

Crystal Palace of glass, and no doubt he is prepared for sportsmen who may be inclined to return his fire. Let us look at this chapter on the 'Dual Hypothesis,' not that there is anything dual about the hypothesis, but only about the subjects of it. Most reasonable people have spontaneously remarked that in the controversy, while it lasted, on the subject of the dual nature of lichens, the systematic lichenologists were ranged on one side, and the morphologists pitched over against (and into) them. It was further noted that the question was really one for morphologists to settle, and they settled it. To treat the controversy, with Mr. Cooke, as still active would be absurd. One might as well describe the battle of Balaclava as still in progress because survivors happily remain with us. The question was settled, and it was not decided in favour of the systematists, headed by Nylander. Mr. Cooke, however, digs up the hatchet, and goes for de Bary, Schwendener, and the rest, just as if there were some novelty left in his proceedings. He fortifies himself with the following inspiring sentence written by 'Dr. Nylander, the prince of lichenologists':—'I have adduced that the gonidia and gonomimia of lichens constitute a normal organic system necessary, and of the greatest physiological importance, so that around them we behold the growing (or vegetative) life chiefly promoted and active.' Mr. Cooke quotes this sentence with special approval, and if he can understand it, no doubt he is entitled to use it. For our own part it appears to us that the man who could write a sentence like that is very unlikely to take a lucid view of anything.

"It is difficult to take seriously the work of any man on Fresh Water Algæ who describes, in this year of grace 1890, the symbiosis of lichens as a 'hallucination' (p. 183). It may be well enough—it is intelligible at any rate—that men like Nylander, Krempelhuber, and others, cited by Mr. Cooke, who have more or less confined their studies to systematic lichenology (a branch of study differing remotely from systematic botany in its extraordinary and absurd methods),—it is well enough that these men should cling to their ancient faith, but when an author presents to the public a book which professes to teach the form and structure of Fresh Water Algæ, it might surely be expected that he should leave this matter alone or take a reasonable view of it. Let him point to distinguished authorities on Fresh Water Algæ who fail to recognize these among the 'gonidia' of lichens! If Mr. Cooke expects an attentive hearing on this matter let him not proclaim his own ignorance.

"The first 190 pages of this book are of an introductory character. The chapters are on such subjects as collection and preservation, cell-increase, polymorphism, asexual and sexual reproduction, conjugation, pairing of zoospores, alternation of generations, spore germination, spontaneous movements, notable phenomena (such as the 'breaking of the meres,' Red Snow, Gory Dew, Blood Rain), the dual hypothesis and classification. Over the ground covered by this list of subjects, there is, indeed, wanted

a good trustworthy popular guide, though the literature is easily enough got at by students. Mr. Cooke would have been the better for such a guide. His knowledge of the literature as displayed here is certainly scanty and by no means recent. To point out this inadequacy of treatment in anything like detail would be labour spent in vain.

"After this introductory portion we have the systematic portion, consisting of short descriptions of the British Fresh Water Algae and at the end the figures of the genera. This is better. It might be objected to the descriptions that they are short—so they are, but on the whole they are judiciously shortened; and considering the author's previous work on this subject, there is reason for some satisfaction with this portion of the book. The author contents himself with these descriptions and a reference to his own larger book, and steers clear of the pitfalls of synonymy. As for the plates, they are mostly outline figures redrawn on stone from Cooke's larger book and other sources. It may be that there is somewhere in this book an acknowledgment of the *original* sources of some of these figures, but we have not yet found the place. However, Dr. Nordstedt has already so fully shown what Mr. Cooke can do in this way on a larger scale that there is no special need to deal with the matter. These figures of the genera and the page giving their names constitute the really useful part of this book. It cannot be claimed for it that it embodies the work of an original worker in this field, or of a man who has an extensive, practical first-hand knowledge of the subject, but so far as the latter part (containing the descriptions and figures) is concerned, it may be said of it that it is worth the price charged as a help to the beginner in naming specimens. As for guidance in the structure, life-history, and relationships of these organisms, the student need expect none of it."—G. M., in *Journal of Botany*, August, 1890.

We shall offer no remarks upon this singular effusion, which will be estimated at its true value by all with whom the "chivalry of a gentleman" is more than an empty phrase. Three facts may serve to illustrate the reason for its production:—(1) The writer of it was one of the authors of the "philosophical system" which was *not* accepted in the Introduction (p. 188). (2) After subscribing to the "Journal of Botany" for fifteen years, the author of the "Introduction" thought fit to cease to subscribe with the current year. (3) The writer of the "review" is attached to the botanical department of the Natural History Museum, and the author of the "Introduction" is similarly attached to the Herbarium of the Royal Gardens at Kew. This will be sufficient to account for a *great deal* with all who know what genial feelings have been manifested for many years between the two establishments. Read by the light of these facts, it will be clear that it was the *author*, and not the *book*, which was intended to be condemned.

## BRITISH PYRENOMYCETES.

By G. MASSEE.

(Continued from p. 60.)

††† *Sporidia 7 septate.*P. *asparagi*, Rabh., Sacc. Syll. 3805.

On asparagus. Not uncommon.

P. *allii*, Rabh., Sacc. Syll. 3806.On *Allium cepa*. Twycross.P. *heleocharidis*, K., Sacc. Syll. 3817.On *Eleocharis palustris*. Lynn.P. *subriparia*, Cke., Sacc. Syll. 3818.On *Carex riparia*. N. Wootton.GEN. 9. **PYRENOPHORA**, Fr. Perithecia setulose, sporidia muriform.*A. EUPYRENOPHORA. Perithecia sclerotiform.*P. *trichostoma*, Fr., Sacc. Syll. 3842.

On stems of various grasses. King's Lynn.

P. *phæocomes*, Reb., Sacc. Syll. 3843; Hdbk. 2785.

On dead leaves of grasses. Highgate, Shere, Glamis.

*B. CHÆTOPLEA. Perithecia between leathery and membranaceous.*P. *calvescens*, Fr., Sacc. Syll. 3845; Hdbk. 2723.On *Atriplex*. Kentish Town; Lynn; Hasbro'.P. *phæocomoides*, Sacc., Sacc. Syll. 3848. = *phæocomes*, B. & Br. p. p.

On dead vine branches. King's Cliffe.

*C. CAPRONIA, Sacc. Ascii 16 spored.*P. *sexdecemspora*, Cke., Sacc. Syll. 3872.

On dead branches. Shere.

Fam. 16. **FOLIICOLÆ**, Fr., S. M. ii., 513. Perithecia innate, chiefly on leaves.GEN. 1. **LÆSTADIA**. Sporidia continuous, hyaline.\* *GENUINA. Ascii without paraphyses.*L. *punctoidea*, Cke., Sacc. Syll. 1592; Hdbk. 2751.

On the upper surface of oak leaves. Jedburgh; Shere.

L. *Cookeana*, Awd., Sacc. Syll. 1596; Hdbk. 2750.

On dead leaves. Common.

L. veneta, S. & Sp., *Sacc. Syll.* 1600.  
 On *Platanus* leaves. Kew.

L. acerifera, *Cke.*, *Sacc. Syll.* 1604; *Hdbk.* 2755.  
 On dead leaves of *Acer campestris*. Shere; Darenth.

L. faginea, *Cke. & Pl.*, *Sacc. Syll.* 6001.  
 On leaves of *Fagus sylvatica*. Lynn.

L. buxi, *Fckl.*, *Sacc. Syll.* 6003; *Hdbk.* 2775.  
 On dead box leaves. Milton.

L. perpusilla, *Desm.*, *Sacc. Syll.* 1608.  
 On leaves of grasses, *Typha*, &c. N. Wootton.

L. rhytismaoides, *Berk.*, *Sacc. Syll.* 1611; *Hdbk.* 2801.  
 On leaves of *Dryas*. Sutherlandshire.

L. carpinea, *Fr.*, *Sacc. Syll.* 1619; *Hdbk.* 2756.  
 On dead hornbeam leaves. Common.

L. rhodorae, *Cke.*, *Sacc. Syll.* 6378.  
 On Rhododendron. Kew.

L. iridis, *Cke. in Grevillea*.  
 On *Iris*. Kew.

\*\* PHYSALOSPORA. With paraphyses.

P. ilicis, *Schl.*, *Sacc. Syll.* 6390.  
 On dead holly leaves. Apethorpe.

GEN. 2. SPHÆRELLA. Sporidia uniseptate, hyaline.

A. ON DICOTYLEDONS.

\* On leaves of trees and shrubs.

S. punctiformis, *Pers.*, *Sacc. Syll.* 1819; *Hdbk.* 2750.  
 On dead leaves. Common.

S. maculiformis, *Pers.*, *Sacc. Syll.* 1820; *Hdbk.* 2742.  
 On fallen leaves. Common.

S. obliqua, *Cke.*, *Sacc. Syll.* 1822; *Hdbk.* 2746.  
 On the under surface of dead chestnut leaves. Darenth Wood, Kent.

S. simulans, *Cke.*, *Sacc. Syll.* 1826; *Hdbk.* 2748.  
 On dead oak leaves. Highgate.

S. taxi, *Cke.*, *Sacc. Syll.* 1836.  
 On leaves of *Taxus baccata*. Cornwall; Bradford Abbas.

S. ligustri, *Desm.*, *Sacc. Syll.* 1835; *Hdbk.* 2760.  
 On dead privet leaves. Dartford, Shere.

S. hedericola, *Desm.*, *Sacc. Syll.* 1841.  
 On ivy leaves. Kew.

S. sentina, *Fr.*, *Sacc. Syll.* 1845.  
 On dead leaves. Audley End, Essex.

S. latebrosa, *Cke.*, *Sacc. Syll.* 1848; *Hdbk.* 2754.  
 On sycamore leaves. Shere.

S. fagi, *Auers.*, *Sacc. Syll.* 1851.  
 On beech leaves.

S. crataegi, *Fckl.*, *Sacc. Syll.* 1852; *Hdbk.* 2745..  
 On hawthorn leaves. Shere; Lynn.

S. arcana, *Cke.*, *Sacc. Syll.* 1859; *Hdbk.* 2747.  
 On dead leaves of *Castanea vesca*. Darenth.

S. millegrana, *Cke.*, *Sacc. Syll.* 1860; *Hdbk.* 2753.  
 On fallen leaves of hornbeam and lime. Shere, Surrey.

S. sparsa, *Wallr.*, *Sacc. Syll.* 1862; *Hdbk.* 2743.  
 On leaves of lime and chestnut. Darenth, Shere, Wandsworth.

S. Capronii, *Sacc. Syll.* 1868; *Hdbk.* 2744.  
 On fallen willow leaves. Shere.

S. macularis, *Fr.*, *Sacc. Syll.* 1873.  
 On fallen poplar leaves. Apethorpe.

### MUSCOLOGIA GALLICA, PART 9.

M. Husnot has just issued the 9th part of his *Muscologia Gallica*, ending with page 284, and 79 plates; it also includes 10 plates in substitution for the first 10 plates of the work, and an analytical key to the genera. We have already called attention to this work, which is proceeding contemporaneously with the British one, by Dr. Braithwaite, and we fear that we must add equally sluggishly. It has occupied six years to produce the nine parts already published, and although it was contemplated to complete it in 14 similar parts, it is somewhat doubtful if it can be contained within that number, or finished, at the present rate of progress, within another three years. It must be expected that the patience of subscribers will get exhausted when they have to wait for ten years, or more, to see the end of a work which they are most anxious should be completed, and turned to a practical use. Surely Bryologists must be exceptionally unfortunate. Let us hope that no unforeseen event will transpire to leave either of these valuable works as only a splendid fragment.

### NORTH AMERICAN FUNGI.

By M. C. COOKE.

#### **Cyphella fumosa, Cke.**

Submembranacea, cyathiforma, stipitata. Cupulis gregariis sparsisve, fumosis, primo expansis, denum siccis conniventibus, nigranticibus, glabris ( $1\text{-}1\frac{1}{2}$  mm. diam. et. long.), sporis globosis.

On rotting leaves of *Gladiolus*. S. Carolina. (Rav. 3071.)

#### **Rhabdospora sabalensis Cke.**

Peritheciis atris, gregariis, subglobosis, innato-erumpentibus, denum subsuperficialibus, ostiolo pertuso. Sporulis elongato-fusiformibus, subcurvulis, utrinque acutis, 5 septatis, hyalinis,  $50\text{-}60 \times 4 \mu$ .

On petioles of Sabal. Aiken, S. Car. (Rav. 1462.)

**Stilbum (Ciliopodium) aurifilum, Gerard. Sacc. Syll. 2733.**

Stipitibus elongatis, setulis strigosis, aureo-flavidis. Capitulo pyriformi vel clavato, albido. Conidiis minutissimis globosis,  $1\ \mu$  vix excedentibus.

On *Dædalia unicolor*. U.S.A.

**Uredo amsoniae, Cke.**

Hypophylla. Maculis obsoletis. Soris minutis, orbicularibus, pallidis, gregariis, primo tectis, dein lacero-erumpentibus. Uredo-sporis globosis, verruculosis, pallide flavidis,  $20-22\ \mu$ .

On leaves of *Amsonia*. S. Carolina. (Rav. 2868.)

## BRITISH THELEPHOREÆ.

The publication of Mr. G. Massee's monograph of the Thelephoreæ is proceeding rather slowly and gradually in the Journal of the Linnean Society. As some alterations are necessarily made in the nomenclature and arrangement of the British species, some indication of these corrections may be advisable, in the order of their publication.

GEN. 1. **CONIOPHORA (D.C.).** *Massee.*

Resupinately effused; hymenium even, powdery; spores coloured brownish.

A. MACROSPORÆ. Spores large ( $11-25\ \mu$  long).1. **Coniophora olivacea (Fr.).** *Cooke Grev. VIII., 89. Berk. Outl. 269. Stev. Brit. Fung. II., 283.*

Membranaceous, adnate, circumference fimbriate, whitish; hymenium thin, dull olive, powdery-tomentose; spores ellipsoid, ochraceous,  $14-17 \times 10-12\ \mu$ .

On pine trunks.

2. **Coniophora pulverulenta (Lev.).** *Cooke Grev. VIII., 89.*

Effused, dry, ferruginous brown, circumference membranaceous, white; hymenium powdery; spores ellipsoid, yellow-brown,  $15 \times 10\ \mu$ .

On wood.

3. **Coniophora puteana (Schum.).** *Cooke Grev. VIII., 88. Stev. Brit. Fung. II., 281.*

Broadly effused, fleshy, fragile, pallid, then yellowish, at length olivaceous brown, circumference mucinous, white; hymenium powdery, spores tawny olive,  $14-16 \times 8-9\ \mu$ .

On bark and wood. Common.

var. **cellaris, Sacc.**

Spores olive-brown,  $10-12 \times 7-8\ \mu$ .

On bark, &c., in conservatories.

4. **Coniophora cinnamomea (Pers.).** *Massee, Stev. Brit. Fung. II., 276.*

Effused, confluent and irregular, adpressed, cinnamon, beneath and circumference fibrillose strigose; hymenium fleshy, soft, of

the same colour, cracking when dry ; spores ellipsoid, apiculate at the base, very pale cinnamon,  $12 \times 8 \mu$ .

On wood and bark.

**5. Coniophora umbrina** (*All. and Schw.*) *Massee. Stev. Brit. Fung.*  
II., 282.

Effused, fleshy, soft, umber, villous beneath, circumference shortly radiating, of the same colour ; hymenium tuberclose, then collapsing, powdered with ferruginous ; spores ellipsoid, apiculate at the base, pale umber,  $12-14 \times 8-10 \mu$ .

Effused on wood, branches, &c.

**6. Coniophora incrassans.** *Massee Linn. Journ.*

Effused, thin, indeterminate ; hymenium subtomentose, pallid ; spores very pale ochre,  $15-17 \times 8-10 \mu$ . (*Herb. Berk.*)

Running over leaves and twigs. Apethorpe.

**7. Coniophora arida** (*Fr.*). *Cke. Grev.* VIII., 89. *Stev. Brit. Fung.*  
II., 282.

Membranaceous, effused, closely adnate, thin, margin radiately byssoid, whitish ; hymenium even, sulphur-coloured, then powdery, umber becoming rusty ; spores ellipsoid, apiculate at the base, ochraceous,  $12 \times 7 \mu$ .

On pine wood.

**8. Coniophora sulphurea** (*Fr.*). *Massee. Cooke Handbk. No. 929.*  
*Stev. Brit. Fung.* II., 276.

Effused, fibrillose byssoid, bright sulphur coloured ; hymenium (when perfect) thick, tawny, waxy and soft, cracking when dry ; spores ellipsoid or subglobose, yellow-brown,  $12 \times 9 \mu$ .

On wood, &c.

var. *ochroidea*, *Berk.*

Spores ellipsoid, apiculate at the base ; olive,  $16-18 \times 9-10 \mu$ .

On wood and bark.

**9. Coniophora subdealbata** (*Berk. & Br.*). *Massee.*

Effused, determinate ; hymenium ochraceous-olive, powdery ; spores ellipsoid, apiculate at the base, ochraceous,  $12 \times 8 \mu$ .

On bark.

**10. Coniophora Berkeleyi**, *Massee, Linn. Journ.*

Effused, thick, determinate ; hymenium brown, at length turning purplish, cracked, interstices silky ; spores ellipsoid, apiculate at the base, tawny,  $12 \times 8 \mu$ .

On decorticated wood.

#### B. MICROSPORÆ. Spores minute (4-10 $\mu$ long).

**11. Coniophora Cookei**, *Massee, Linn. Journ.*

Effused, fibrillose membranaceous, margin byssoid, pallid ; hymenium ferruginous olive, powdery ; spores elliptic, ochraceous,  $10 \times 6 \mu$ .

On rotting wood.

**12. Coniophora ochracea**, *Massee, Linn. Journ. t. 47, f. 13.*

Very broadly effused, somewhat membranaceous, indeterminate; hymenium powdery, ochraceous; spores yellowish, subglobose,  $8 \times 6-7 \mu$ .

Spreading continuously over the inside of elm bark. Kew.

**13. Coniophora membranacea** (*D.C.*). *Cooke Grev. VIII., 89. Sow. Fungi t. 214.*

Somewhat orbicular, or effused, rather membranaceous, fragile, margin fibrillose, yellowish; hymenium dingy ferruginous, powdery; spores elliptical, brownish-yellow,  $10-15 \times 5-6 \mu$ .

Forming thin patches on walls, &c.

**GEN. 2. PENIOPHORA.** *Cooke Grev. VIII., 20.*

Resupinate effused; hymenium setulose, setæ (or cystidia) hyaline, verruculose, fusiform; spores white, hyaline.

**A. Margin free, more or less reflexed.****1. Peniophora quercina** (*Fr.*) *Cooke Grev. VIII., t. 125, f. 13.*

Between cartilaginous and membranaceous, at first adglutinate, then with the centre fixed, elsewhere separated, and at length involute, rigid, smooth beneath and turning black; hymenium flesh colour; cystidia fusoid,  $50-70 \times 15-20 \mu$ . Spores oblong ellipsoid, curved,  $13-15 \times 5 \mu$ .

On oak branches, etc. Common.

**2. Peniophora pezizoides**, *Massee Mon. Thel. p. 141, t. 47, figs. 17-19.*

Somewhat leathery, cup-shaped, then flattened, fixed at the centre, externally pallid villous; hymenium ochraceous, velvety, continuous; cystidia fusoid, but with the apex rounded, acute at the base,  $50-60 \times 20 \mu$ . Spores globose,  $4-5 \mu$ .

On horse-chestnut branches. Kew.

**3. Peniophora gigantea** (*Fries.*) *Massee Mon. Thel. p. 142. Corticium giganteum, Handb. 922. Stev. Br. Fung. II., 274.*

Very broadly effused, swelling when moist, waxy, hyaline-white, cartilaginous when dry, papery, free, milk white, margin strigose radiating; hymenium even, continuous, velvety; cystidia fusoid,  $50-60 \times 20-30 \mu$ . Spores ellipsoid,  $10 \times 5-6 \mu$ .

On bark and wood of fir.

**B. Margin adpressed, often indeterminate.****4. Peniophora limitata** (*Mont.*). *Cooke Grev. VIII., t. 123, f. 7.*

Somewhat orbicular, closely adnate, grumous, indurated, smooth, lurid, becoming pale; margin limited by a black line; hymenium very delicately velvety; cystidia fusoid,  $30-40 \times 15-20 \mu$ . Spores oblong-ellipsoid, slightly curved, apiculate at the base,  $20-22 \times 6 \mu$ .

On bark and wood.

**5. *Peniophora rosea* (Pers.).** *Massee Mon. Thel.* p. 146. *Handbk.* No. 926. *Stevenson Brit. Fungi* II., 275.

Effused, adnate, rose-colour, margin fimbriate whitish; hymenium delicately velvety, growing pale, at length corrugated and cracked; cystidia fusoid,  $40-60 \times 20-30 \mu$ . Spores oblong-ellipsoid, curved,  $13-15 \times 4-5 \mu$ .

On wood and bark.

**6. *Peniophora incarnata* (Fr.).** *Massee Mon. Thel.* p. 147. *Handbk.* No. 933. *Stev. Brit. Fungi* II., 227.

Somewhat waxy, adglutinate, indeterminate, margin radiating; hymenium persistently bright coloured (red, orange), velvety with short setæ; cystidia fusoid,  $25-30 \times 15-20 \mu$ . Spores oblong-ellipsoid, curved, apiculate at the base,  $20 \times 5-6 \mu$ .

On wood and bark.

Cystidia much exserted, soon falling away, leaving the hymenium smooth.

**7. *Peniophora cinerea* (Fries).** *Cooke Grev.* VIII., t. 123, f. 8. *Handbk.* No. 937. *Stev. Brit. Fungi* II., 279.

Waxy, then becoming rigid, confluent, cinereous or lurid, margin similar; hymenium delicately velvety, cystidia fusoid,  $30-50 \times 20-25 \mu$ . Spores globose,  $5-7 \mu$ .

On wood and bark.

**8. *Peniophora pubera* (Fries).** *Massee Mon. Thel.* p. 149. *Stev. Brit. Fung.* II., 277.

Broadly effused, closely adnate, indeterminate, white or clay-coloured; hymenium even, velvety with short setæ, cracking when dry; cystidia cylindrically fusoid,  $80-120 \times 15-20 \mu$ ; spores oblong-ellipsoid,  $10-12 \times 4 \mu$ .

On wood or bark.

**9. *Peniophora ochracea* (Fries).** *Massee Mon. Thel.* p. 150. *Handbk.* No. 635. *Stev. Brit. Fung.* II., 278.

Broadly effused, margin white, somewhat radiating, soon vanishing; hymenium pallid ochraceous, sprinkled with scattered shining golden atoms, at length naked, when dry cracked; cystidia fusoid,  $40-50 \times 20 \mu$ ; spores ellipsoid,  $10 \times 5 \mu$ .

On bark, wood, &c.

**10. *Peniophora scotica*, *Massee Mon. Thel.* p. 152.**

Broadly effused, margin fibrillose radiate; hymenium cinnamon, velvety; cystidia somewhat cylindrical,  $80-120 \times 15-20 \mu$ ; spores ellipsoid,  $8-10 \times 6-7 \mu$ .

Broadly effused over the inside of bark. Scotland.

**11. *Peniophora velutina* (Fr.).** *Cooke Grev.* VIII., t. 125, f. 15. *Handbk.* No. 927. *Stev. Brit. Fung.* II., 275.

Broadly effused, adnate, flesh-coloured, margin strigose with divergent straight fibres of the same colour; hymenium even, velvety with dense setæ; cystidia cylindrically fusoid,  $60-80 \times 10-15 \mu$ ; spores ellipsoid, apiculate at the base,  $10 \times 15 \mu$ .

On wood and bark.

When well developed of a pale cream-colour, tinged with pink; often pallid.

**12. *Peniophora rimosa*, Cooke Grev. ix., 94.**

Broadly effused, adglutinate, indeterminate; hymenium ochraceous delicately velvety, cracking into areolæ, interstices silky; cystidia fusoid,  $70\text{-}100 \times 15\text{-}18 \mu$ ; spores oblong-ellipsoid, obtuse at each end, slightly curved,  $15\text{-}17 \times 6 \mu$ .

On bark and wood.

**13. *Peniophora terrestris*. Massee Grev. xv., p. 107.**

Effused, very thin, cinereous, or pallid fawn colour, indeterminate; hymenium velvety; cystidia cylindrically fusoid,  $85\text{-}90 \times 15\text{-}20 \mu$ ; spores ellipsoid,  $10 \times 6\text{-}7 \mu$ .

On naked soil and dead leaves.

C. Sub-Gen. SCOPULOIDES; cystidia aggregated in fascicles.

**14. *Peniophora hydnoides*, Cooke & Massee Mon. Thel. 154, t. 47, figs. 15, 16.**

Broadly effused, thin, rather innate, indeterminate; hymenium cinereous; cystidia cylindrically fusoid,  $70\text{-}120 \times 12\text{-}14 \mu$ ; spores globose,  $4\text{-}5 \mu$ .

On bark. Carlisle.

## GEN. 3. HYMENOCHÆTE, Lev.

Pileus coriaceous, membranaceous, variable in form. Hymenium furnished with minute rigid persistent setæ. Basidia tetrasporous. Spores white or olive.

I. STIPITATÆ. Having a definite stem. No British species.

II. APODES. Spores white, setæ acuminate.

**1. *Hymenochæte rubiginosa*, Lev. Ann. Sci. Nat. Ser. 3, v. 121. Cooke Grev. viii., 145. Stev. Brit. Fung II., 269.**

Coriaceous, rigid; pileus effused, reflexed, somewhat imbricate, velvety, reddish-brown, then becoming smooth, bay-brown, intermediate stratum tawny-ferruginous; hymenium ferruginous; setæ acutely conical, or rather obtusely cylindrical,  $80\text{-}100 \times 5\text{-}8 \mu$ ; spores ellipsoid,  $5 \times 3 \mu$ .

On hard wood, posts, etc.

**2. *Hymenochæte avellana* (Fries). Cooke Grev. viii., 146. Stev. Brit. Fung II., 270.**

Coriaceous, hard; pileus effused, margin obtuse, free, narrowly reflexed, bay-brown, villous; hymenium even, velvety or pruiniate, or becoming smooth, pale ferruginous (here and there bleeding); setæ cylindrical, rather obtuse,  $80\text{-}140 \times 7\text{-}9 \mu$ ; spores cylindrically ellipsoid,  $6\text{-}7 \times 3 \mu$ .

On hazel, beech, etc. Appin.

III. RESUPINATÆ. Pileus resupinate.

† Spores white, setæ acuminate.

**3. *Hymenochæte nigrescens*, Cooke in Herb. Kew. Massee. Mon. Thel. 104, t. 5, f. 5.**

Pilei peltate, flattened, solitary or gregarious, or confluent, rigid, margin free, a little reflexed; hymenium setulose, brownish, turn-

ing black ; setæ conical, becoming blackish,  $80-140 \times 10-12 \mu$  ; spores ellipsoid,  $10 \times 5 \mu$ .

On dry wood. Carlisle.

**4. Hymenochæte Stevensoni**, Berk. & Br. Ann. Nat. Hist. 1879, p. 211. S. rufohispidum. Stev. Brit. Fung. 269.

Pallid fawn colour, rigid ; margin obtuse, elevated ; setæ rigid,  $20-40 \times 8-10 \mu$ . Spores elliptically fusoid,  $6-7 \times 3-4 \mu$ .

On yew. Dunkeld or Glamis, N.B.

**5. Hymenochæte leonina**, Berk. & Curt. Massee, Mon. Thel. 107.

Wholly resupinate, ferruginous, saffron colour ; margin tomentose ; hymenium unequal, inseparable, not cracking ; setæ acuminate, thick,  $20-30 \times 12-15 \mu$ . Spores subglobose,  $6 \times 5 \mu$ .

On dead wood.

**6. Hymenochæte fuliginosa**, Lev. Grev. VIII., 147. Mass. Mon. Thel. p. 109.

Effused, coriaceous, compact, dark fuliginous bay-brown ; hymenium even ; setæ dense, sometimes scattered,  $30-50 \times 6-8 \mu$  ; spores subglobose,  $5 \times 4 \mu$ .

On wood.

†† Spores olive.

**7. Hymenochæte corrugata**, Lev. Ann. Sci. Nat. v., 152. Stev. Brit. Fung. II., 280. Cooke Handbk. No. 918.

Somewhat effused, closely adnate, soon grumous ; pallid cinnamon ; hymenium beset with ferruginous setæ, when dry much cracked ; setæ conical, acuminate,  $70-120 \mu$  ; spores ellipsoid, olivaceous,  $7-8 \times 4-5 \mu$ .

On bark, etc.

**8. Hymenochæte croceo-ferruginea**. Massee Mon. Thel. p. 110, t. 5, f. 9.

Effused, broadly incrusting, very thin, ferruginous, saffron colour, becoming tawny ; hymenium very minutely setulose, cracked ; setæ cylindrical, inflated at the base,  $70-100 \times 30-35 \mu$  ; spores subglobose, olive,  $7 \times 6 \mu$ .

On dead stem of *Rosa canina*. Apethorpe.

**9. Hymenochæte tabacina**, Lev. Cooke Grev. VIII., 145 ; Handbk. No. 917.

Somewhat coriaceous, thin, flaccid ; pileus effused, reflexed, silky, at length smooth, rather ferruginous, margin and intermediate stratum filamentose, golden yellow ; hymenium paler, pubescent with setæ, which are conical acuminate,  $80-130 \times 10-14 \mu$  ; spores ellipsoid, olive,  $5-6 \times 3 \mu$ .

On trunks, etc.

††† Setæ subclavate, sometimes rough.

**10. Hymenochæte crassa**, Berk. Cooke Grev. VIII., 148.

Pileus resupinate, coriaceous, tomentose, velvety, pallid rufous, margin thick, at length free ; hymenium unequal, velvety, of the

same colour; setæ conical or subclavate, sometimes rough,  $70-130 \times 7-14 \mu$ ; spores cylindrically ellipsoid,  $7-8 \times 4 \mu$ .

On trunks.

**Hymenochæte Boltoni** (*Sacc.*). *Cooke Grev. VIII.*, 145.

Has been supposed to be British, but there is no reliable evidence.

### MEMORABILIA.

**HYPoxylon Broomeianum**, *Berk. & Curt.*—The specimens named *Hypoxylon amorphum*, *Ell. & Ev.*, are typical *H. Broomeianum*, *Berk.*, according to authentic specimens.

**POLYSTICTUS PERADENIÆ**, *B. & Br.*—According to authentic specimen the *Polyporus chrysoleucus*, Kalchbrenner, is no other than the above species.

**POLYSTICTUS LUTEO-OLIVACEUS**, *Berk.*—Specimen of *Polyporus placodes*, Kalchbrenner, believed to be genuine is certainly the above species of Berkeley.

**VALSA PLATANI**, *Schwein. Syn. Amer. Bor.*, 1372.—Sporidia eight, allantoid, hyaline,  $10 \times 2 \mu$ . From specimen communicated to M. J. Berkeley by Dr. M. A. Curtis.

**FUNGI SCANDINAVICI**.—Mr. Lars Romell has issued his first century of dried specimens of Scandinavian Fungi, neatly got up, but unfortunately in the modern style, with the specimens loose in pockets. Nicely they will be mixed up in public herbaria in a few years. Of course everybody will return them to the wrong pockets. They always do. The only trustworthy exsiccati will then be those in which the specimens are permanently glued down.

**FUNGUS FORAYS**, 1890.—Up to the time of going to press arrangements had not been completed for the dates of the Fungus Forays this year, on account of the uncertain state of the weather. The Cryptogamic Society of Scotland has fixed its sixteenth conference for the 23rd of September at the Boat of Garten (Station on Highland Railway), and following days. The Essex Field Club propose to go outside Epping Forest this year, and explore other woods in the county. The Woolhope Club will occupy the usual first week in October, but definite programme has not yet been arranged. Again the Hampshire Naturalists are projecting a raid in the New Forest, but beyond these we have, as yet, no intimation. In due time we presume that those who customarily take part in these gatherings will receive private notice.

**AUSTRALIAN FUNGI**.—Efforts have been made during the past year or two, and are still being made, to arrange for the production of a Handbook of the Fungi of the Australian colonies, with short descriptions of the genera and species in English, and illustrations of the genera. The want of such a work has long been felt, but the difficulty has been in securing some guarantee against personal pecuniary loss. Present prospects are somewhat

favourable to the hope that the several Governments will combine in active patronage, and that some arrangement will be made for carrying this project into execution, despite the difficulties which have hitherto presented themselves. It is probable now that such a work will be fairly on the way in the coming year.

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# Grevillea.

A QUARTERLY RECORD OF CRYPTOGAMIC BOTANY  
AND ITS LITERATURE.

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## BRITISH THELEPHOREI.

(Continued from p. 21.)

### GEN. 4. **CORTICIUM.** Fries.

Hymenium amphigenous, even or tuberculose, waxy, smooth, arising immediately from the mycelium without an intermediate stratum; spores white.

#### A. Margin free, determinate, marginate.

##### 1. **Corticium salicinum** (Fr.). *Stev. Brit. Fung.* II., 273.

Coriaceous, soft, rigid when dry, fixed by the centre, margin everywhere reflexed, externally white villous; hymenium persistently blood red, continuous when dry; spores cylindrical-ellipsoid, curved,  $14-16 \times 5-6 \mu$ .

On willow, rarely on poplar. Kinrara, N.B.

##### 2. **Corticium evolvens** (Fr.). *Cooke Handbk.* No. 921. *Stev. Brit. Fung.* II., 273.

Resupinate, marginate or effuso-reflexed, soft, covered beneath with a whitish flocculose tomentum, not zoned; hymenium naked, smooth, rather rugose, tawny growing pale, cracking when dry; spores ellipsoid,  $10-12 \times 5 \mu$ .

On bark, especially cherry. King's Cliff. Batheaston. Dangstein, Warwick. Glamis. Forres, N.B.

##### 3. **Corticium porosum**, Berk. & Curt. *Ann. Nat. Hist.* No. 1821. *Stev. Brit. Fung.* II., p. 275.

Resupinate, milk white, here and there porous, margin free, reflexed; spores oblong-ellipsoid,  $7 \times 4 \mu$ . ("The pores look as if little dewdrops had settled on the hymenium, which had in consequence contracted.")

On wood. Aboyne.

##### 4. **Corticium populinum**, Fr. *Hym. Eur.* 648.

Soft, tuberculiform, soon confluent and effused, at length involute, marginate, whitish tomentose beneath; hymenium uneven, ferruginous-cinereous; spores subglobose  $7-8, \mu$

On poplar. Scarboro.

**5. *Corticium lycii* (Pers.).** Cooke Grev. ix., 95.

Effused, thin; margin pallid, free, somewhat byssoid; hymenium lilac, continuous; spores ellipsoid,  $8 \times 4 \mu$ .

On *Lycium* and *Syringa*. Kew.

***Corticium Boltoni*, Fries.** Massee Mon. Thel. 123.

This is undoubtedly the same thing as *Hymenochaete Boltoni*, Sacc., referred also to Bolton's t. 166, fig. d. But the whole evidence of its being British depends on this figure.

**B. Immarginate, margin and substratum byssoid or strigose.**

\* *Hymenium white, or ochraceous.*

**6. *Corticium calceum*, Fr. Hym. Eur. 652. Handbk. No. 933. Stev. Brit. Fung. II., 277.**

Broadly effused, adglutinate, waxy, quite smooth, white, margin similar; hymenium even, cracked when dry, pallid; spores cylindrically ellipsoid,  $8 \times 4 \mu$ .

On wood. Common.

*Cort. cretaceum*, Pers., does not appear to be specifically distinct.

**7. *Corticium serum*, Fr. Hym. Eur. 652. Stev. Brit. Fung. 283.**

Broadly effused, incrusting, thin, white, fleshy when recent, smooth, pruinose, then dry and flocculose and splitting, with crowded rounded equal papillæ; spores ellipsoid,  $12-15 \times 8-9 \mu$ .

On wood. Epping. Glamis. Menmuir. Maidenhead.

**8. *Corticium sebaceum* (Fr.).** Massee Mon. Thel. 127. Handbk. No. 904. Stev. Brit. Fung. II., 265. *Sebacina incrustans*, Tulasne.

Effused, between fleshy and waxy, becoming hard, incrusting and variable in form, tuberculate or stalactitic, whitish, margin similar; hymenium collapsing, flocculose pruinose; spores ellipsoid, apiculate at the base,  $14-16 \times 7-9 \mu$ .

On the ground, or running over grass, twigs, &c. Not uncommon.

**9. *Corticium scutellare*, Berk. & Curt. Grev. II., p. 4. Stev. Brit. Fung. II., 278.**

Resupinate, broadly effused, immarginate, whitish then somewhat tan coloured; hymenium cracking into minute areolæ; spores ellipsoid,  $5 \times 3 \mu$ .

On wood and herb stems. Strachan, Glamis, N.B. Carlisle.

**10. *Corticium foetidum*, Berk. & Broome Ann. Nat. Hist. No. 1824. Mass. Mon. Thel. p. 181, t. 6, f. 3. Stev. Brit. Fung. II., 275.**

Strong scented, effused, resupinate, arachnoid beneath, white, then ochraceous, smooth; spores ellipsoid,  $7 \times 4 \mu$ .

On sawdust. Coed Coch.

**11. *Corticium lacteum*, Fr. Hym. Eur. 649. Handbk. No. 923. Stev. Brit. Fung. II., 274.**

Broadly effused, somewhat membranaceous, milk white, substratum and margin loosely fibrillose (often radiating in long thick

mycelial strands, in a frondose manner), hymenium waxy, when dry cracking and parting, pallid ochraceous; spores subglobose,  $5-6 \mu$ .  
On wood. Sherwood Forest.

**12. *Corticium læve***, Fr. *Hym. Eur.* 649. *Handbk.* No. 925. *Stev. Brit. Fung.* II., 275.

Effused, membranaceous, separating from the matrix, substratum villous, circumference byssoid (not fibrillose radiate); hymenium even, smooth, somewhat flesh colour or livid; spores ellipsoid,  $7 \times 5 \mu$ .

On wood, bark, &c. Common.

**13. *Corticium nudum***, Fr. *Hym. Eur.* 655.

Waxy, adglutinate, cracking, flesh-colour, then pale; margin determinate, smooth; hymenium even, cracking when dry, clad with a fugacious white meal; spores ellipsoid,  $8 \times 5 \mu$ .

On bark. Carlisle.

**14. *Corticium confuens***, Fries *Hym. Eur.* 655, *Handbk.* No. 940.  
*Stev. Brit. Fung.* II., 279.

Adglutinate, somewhat membranaceous; margin radiating (not fibrillose); hymenium even, naked, hyaline, becoming white when dry; spores cylindrically ellipsoid,  $20 \times 10 \mu$ .

On bark, usually beech. Sibbertoft.

**15. *Corticium arachnoideum***, Berk. *Ann. Nat. Hist.* No. 287.  
*Handbk.* No. 924. *Stev. Brit. Fung.* II., 275.

Thin, effused, pallid, immarginate, fibrillose or rather floccose beneath, margin fimbriate with white fibrils; hymenium waxy, continuous, here and there cracked when dry; spores globose,  $6-7 \mu$  diam.

On wood, bark, &c. Common.

**16. *Corticium typhae***, Fckl. *Symb. Myc.* p. 27. *Stev. Brit. Fung.* II., 281.

Longitudinally effused, thin, at first forming spots, which are white and byssoid, smooth, then mealy, tan coloured; spores ellipsoid,  $6 \times 3-4 \mu$ .

On dried leaves of *Typha* and *Carex*. N. Wootton.

**17. *Corticium epiphyllum* (Pers.)**. Wallr. *Crypt. Germ.* No. 1982.

Very thin, smooth, irregularly effused, margin indeterminate, wholly whitish, becoming cinereous.

On dead oak leaves. Shrewsbury. Badminton.

**18. *Corticium sambuci***, Fries *Hym. Eur.* 660. *Handbk.* No. 943.  
*Stev. Brit. Fung.* II., 283.

Broadly effused, indeterminate, rather innate, encrusting, ambient, white; when dry flocculose and collapsing; spores ellipsoid,  $8-10 \times 5-6 \mu$ .

On *Sambucus*. Common.

**19. *Corticium lactescens*, Berk. *Outl.* p. 274. *Handbk.* No. 932.  
Stev. *Brit. Fung.* II., 276.**

Between soft and waxy, adglutinate, undulate, pale flesh coloured, when wounded exuding a watery milk, margin byssoid, continuous, short; hymenium at length cracked, interstices pallid, silky; spores globose,  $4 \mu$  diam.

On ash, willow, &c. Near Hereford, Oswestry, Staunton, Bungay, Clifton, West Farley, Perth.

**20. *Corticium lacunosum*, Berk. & Br. *Ann. Nat. Hist.* No. 1371.  
Stev. *Brit. Fung.* II., 284.**

Broadly effused, soft, mycelium woolly, tawny, lacunose; hymenium ochraceous or cinnamon, waxy, continuous; spores ellipsoid, hyaline,  $7 \times 4-5 \mu$ .

On wood. Aboyne, Carlisle.

**21. *Corticium radiosum*, Fries *Hym. Eur.* 649.**

= C. radians, B. & Br.

Rather rounded, membranaceous, adnate, adpressedly fibrillose beneath, margin fimbriate with white fibrils; hymenium even, smooth, tan coloured, continuous; spores subglobose,  $5-6 \mu$  diam.

On rotten wood. Coed Coch.

\*\* *Hymenium brightly coloured.*

**22. *Corticium roseolum*, Massee *Mon. Thel.* 140, t. 6, f. 2.**

Very broadly effused, indeterminate, very thin; hymenium continuous, smooth, of a beautiful rose colour, becoming pale; spores subglobose, apiculate at the base,  $7 \times 8-9 \mu$ .

On old worked wood. Apethorpe, Carlisle.

**23. *Corticium aurora*, Berk. *Outl.* p. 276. *Handbk.* No. 944. *Stev. Brit. Fung.* II., 281.**

Effused, very thin, adglutinate, rosy, becoming pale; margin indeterminate; spores ellipsoid, apiculate at the base,  $10-11 \times 7-8 \mu$ .

On dead leaves of *Carex*. Batheaston.

**24. *Corticium anthochroum* (Pers.). *Fr. Hym. Eur.* 661. *Handbk.* No. 909. *Stev. Brit. Fung.* II., 284.**

Broadly effused, membranaceous, brick red or rosy, growing pale; margin byssoid, paler; spores ellipsoid,  $11-13 \times 8-9 \mu$ .

On bark. Batheaston. Forres, N.B.

**25. *Corticium molle*, Fries *Hym. Eur.* 660.**

Rather rounded, floccosely fleshy, loosely interwoven, soft, pallid, spotted with reddish, villous beneath; margin naked; hymenium waxy, papillose, cracked when dry; spores cylindrically ellipsoid, obtuse at each end,  $7 \times 5 \mu$ .

On wood and bark of pine.

**26. *Corticium polygonum***, Fries Hym. Eur. 655. Handbk. No. 941. Stev. Brit. Fung. II., 280.

Adnate, determinate, soon indurated, rather grumous, flesh coloured, margin similar ; hymenium red beneath the dense frosty meal ; spores cylindrically ellipsoid,  $14-16 \times 5-7 \mu$ .

On bark, especially poplar. Batheaston, Somerset, &c.

Appearing under the form of dense *Tubercularia*-like pustules.

**27. *Corticium maculæforme***, Fr. Hym. Eur. 656. Stev. Brit. Fung. 4. Fl. Dan., t. 1738, f. 2.

Orbicular, then confluent, indurated, thin, somewhat rosy ; margin similar, smooth ; hymenium spuriously papillose, greyish pruinose.

On dry branches. Penzance.

**28. *Corticium sanguineum***, Fries Hym. Eur. 650. Handbk. No. 928. Stev. Brit. Fung. II., 276.

Broadly effused, indeterminate, loosely adherent, web-like beneath, blood-red ; margin loosely fibrillose ; hymenium even, smooth, flesh coloured, at length pallid ; spores ellipsoid,  $6 \times 4 \mu$ .

On wood. Appin, Carlisle, Apethorpe. Forres, N.B. Hereford.

**29. *Corticium Carlylei***, Massee Mon. Thel. 148.

Effused in elongated patches, adglutinate, between waxy and soft, smooth ; margin white, soon vanishing ; hymenium even, naked, dingy orange, continuous when dry ; spores cylindrically ellipsoid, obtuse at the ends, curved,  $18-20 \times 5-6 \mu$ .

On oak bark. Carlisle.

**30. *Corticium flaveolum***, Massee Mon. Thel. 150.

Effused, membranaceous, loosely adhering to the matrix ; margin determinate ; hymenium smooth, pallid yellowish ; spores cylindrically ellipsoid, obtuse at the ends,  $7 \times 5 \mu$ .

On trunk of tree-fern. Kew.

**31. *Corticium cœruleum***, Fries Hym. Eur. 651. Handbk. No. 930. Stev. Brit. Fung. II., 277.

Broadly effused, adnate, tomentose, bright blue ; margin byssoid of the same colour, becoming whitish ; hymenium soft, waxy, turning paler when dry ; spores ellipsoid,  $8 \times 4 \mu$ .

On wood. Common.

**32. *Corticium violaceo-lividum***, Fries Hym. Eur. 655. Stev. Brit. Fung. II., 280.

Somewhat effused, adnate, indurated, livid-violet, margin paler ; hymenium spuriously corrugated, tuberculose ; clad with a scattered whitish meal ; spores cylindrically ellipsoid, curved,  $8 \times 4 \mu$ .

On wood. Glamis, N.B.

**33. *Corticium lividum***, Pers. Obs. I. p. 38. Handbk. No. 934. Stev. Brit. Fung. II., 278.

Effused, closely adnate, between waxy and soft, variable in colour ; margin similar ; hymenium even, naked, rather viscid

when moist, cracking when dry ; spores cylindrically ellipsoid,  $7-8 \times 4 \mu$ .

On wood. Carlisle, Coed Coch, Glamis.

**34. *Corticium atro-virens***, Fries Hym. Eur. 651. Handbk. No. 931. Stev. Brit. Fung. II., 277.

Irregularly effused, thin, dark greenish ; margin and substratum tomentose, of the same colour ; hymenium waxy, smooth, pruinose with white ; spores subglobose,  $4-5 \mu$  diam.

On rotten wood, leaves, sticks, &c. Epping, Coed Coch.

C. Amphigenous, very thin, innate, throwing off the bark.

**35. *Corticium nigrescens***, Fries Hym. Eur. 556.

Effused, interrupted, when the epidermis is cast off naked, innate, thin, yellowish, then becoming blackish ; hymenium here and there papillose, waxy, sub-pruinose ; spores cylindrically oblong, obtuse at the ends, curved,  $18-20 \times 5-6 \mu$ .

On branches. Carlisle.

**36. *Corticium comedens***, Fries Hym. Eur. 656. Handbk. 942. Stev. Brit. Fung. II., 281.

Effused, innate, growing beneath the bark ; when the epidermis is cast off naked, lilac, growing pale ; hymenium even, smooth, cracking when dry ; spores cylindrically ellipsoid, often curved,  $14-16 \times 6-7 \mu$ .

On branches, especially hazel. Common.

## CONTROVERTED AGARICS.

By M. C. COOKE.\*

The practical completion of the "Illustrations of British Fungi" affords me an opportunity, and an excuse, for a few brief observations on some of the species which are open to discussion. It seems to me not of so much consequence whether any distinct form of Agaric should be called a species, or only a variety, as it is to have a definite name by which such a form, or variety, or species, can be distinguished, and a true and faithful figure to which reference can be made. Notwithstanding this, it cannot be an advantage to science that species should be called by names which assume that the plants represented are the same as those which have been described by older authors under such designations. It may be that I have not always been wholly free from error myself, but wherever such is shown to be the case, I am ready to retract, since I know that to "err is human," and during the course of this paper I shall not hesitate to express my doubts frankly, and

\* Paper read at the Woolhope Naturalists' Field Club, September 30th, 1890.

give the benefit of the doubt to those who may have disputed my views.

It is not my intention, nevertheless, to give way recklessly on points which have given me much cause for consideration, and on which the evidence as yet adduced is insufficient to raise a doubt in my own mind. Such, for instance, is the case with *Tricholoma russula* and *Hygrophorus erubescens*, as well as *Russula delica* and *Lactarius exsuccus*. In both these cases, although prepared to treat with respect views opposed to my own, I am not convinced.

There is, however, a rather important instance in which I am inclined to modify considerably. In the *Scottish Naturalist*, July, 1890, the Rev. Dr. Keith writes of *Agaricus storea*, Fr., as follows :—

"This fungus has got itself established in our books as a species which has been found both in England and Scotland ; but though I have frequently met with the plant which has been going by this name among British mycologists, I have never been able to satisfy myself as to its identity with Fries' species. *Ag. storea* is recorded and described in three of Fries' works--his 'Epicrisis' (1836-38), his 'Monographia' (1857), and his 'Hymenomycetes Europœi' (1874). In each of these it is expressly mentioned that he had found it only twice, in 1815 and 1833, and on both occasions on the same trunk. As regards his acquaintance with the species, therefore, all three works are of equal value, for he had never met with it after describing it in the 'Epicrisis.' Indeed, the description in the 'Hymenomycetes' is a verbatim translation of that in the 'Epicrisis,' so that I am inclined to regard the description in the 'Monographia' as his latest independent account of the species. Now in that description it is expressly declared to be a solitary growing species, a feature which is emphasized by being printed in italics, and which is said to remove it far from other species otherwise approaching it closely. On the other hand, the fungus which has been passing among us as *Ag. storea*, Fr., is a remarkably cæspitose one, diverging in this respect very strikingly from the habit of the true plant. Stevenson, in his 'British Fungi,' gives Fries' description of the species with his usual accuracy, and mentions two habitats Ascot and Perth fungus show. I know nothing of the Ascot specimens, but those which occurred at Perth were growing in large clusters, and it was there I got, from a distinguished English mycologist, the name of *Ag. storea*, Fr., for a fungus which I had previously taken for *Ag. lacrymabundus*, Fr. Cooke cuts the knot of the difficulty by calling it *Ag. storea*, Fr., var *cæspitosus*, C. But let anyone compare the figure which he so designates with that which he gives of *Ag. lacrymabundus*, Fr., and, excepting the slight difference of colour, he will find little to distinguish them. The conclusion I am inclined to come to is that my original idea was correct, and that the fungus which has been taken for *Ag. storea*, Fr., is only a form, and scarcely entitled to be called a variety of *Ag. lacrymabundus*, Fr."

Before making any observations on the foregoing, I must testify my profound respect for the opinions of Dr. Keith on matters relating to the Hymenomycetes, my ready acknowledgment of his great experience in field work, and a full recognition of his careful and acute powers of observation. No opinion which I have heard on this vexed question has come to me with an equal degree of force, and I must acknowledge myself, if not entirely, yet to a very large extent, ready to accept his interpretation.

The first record of this name amongst British Fungi was by Berkeley and Broome in the "Annals of Natural History," No. 1418, with the remark : "This curious species occurred last year at the base of different trees at Ascot and at Coed Coch ; and it has also been found by Mr W. G. Smith, and was exhibited at South Kensington, October, 1873. It is considered very rare by Fries ; but it is probably one of those species which are abundant in some one year, and are not found again for a generation." W. G. Smith figured his specimens in the *Journal of Botany*, Vol. xiv., Plate 176, Fig 4. There remains no doubt that the species seen by Berkeley, and found by Smith, were the same as that figured in "Illustrations of British Fungi," Plate 543, and again, the same as that alluded to by Dr. Keith as exhibited at Perth. Of the identity of all these there need be no question. Berkeley and Smith had the same plant in view, for both have indicated it to me as *Ag. storea*, Fr., and gave me the first impression of the species.

In 1884 Mr. C. B. Plowright gave expression to his views on this species in "Grevillea," Vol. xiii., p. 48, where he described it under the name of *Ag. hypoxanthus*, adding : "This Agaric has been regarded as *A. storea*, but incorrectly so. It is always cæspitose,\* and has hitherto occurred either on rotten beech wood or under beech trees." I was still under the impression that it was a cæspitose condition of *Ag. storea* when it was figured as *Ag. storea* var *cæspitosus* in "Illustrations of Fungi," Plate 543, and I was much influenced by the opinion of the Rev. J. Berkeley in its favour.

Upon careful consideration of the subject, I have come to the conclusion that we really know nothing of *Ag. storea* beyond the description in Fries. There is no figure of it in existence, as far as we know, and we have nothing to guide us but a strict adherence to the description given by Fries. The plant under consideration does not conform in all particulars to the description ; it cannot be the typical form ; and it seems to me that I am not justified in insisting upon the retention of a variety, the type of which is comparatively unknown. I think that the points of divergence insisted upon are its cæspitose habit, moist viscid pileus, and hollow stem, and I doubt if the edges of the gills are alboserrulate. I cannot recognize the habit of *Inocybe* ("habitus

\* This present year (1890) I have found precisely the same species growing *solitary*, so that it is not always cæspitose.—M. C. C.

potius *Inocybes*"), therefore my inference is that it is safer to revert (at least *pro tem.*) to the name *Agaricus hypoxanthus*, Plow., and dissever it entirely from *Ag. storea*.

One other question has been raised, and it is that which I do not at present see my way to accept, that this is a form of *Agaricus lacrymabundus*, Fr. I have not recognized the "weeping gills," and for the time being will pass it by as an "open question."

I must be permitted to relieve my mind a little in reference to three or four closely similar forms to each other which have hitherto borne distinctive names, but which I am beginning to think do not deserve that honour. This group includes, as we know them, *Agaricus (Nolanea) pisciodorus*, Cesati (illustr., 378, Fig. A), *Ag. (Nolanea) piceus*, Kalch (illustr., 379, Fig. A), *Ag. (Naucoria) cucumis*, Pers. (illustr., 452), and *Ag. (Nolanea) nigripes*, Trog (illustr., 1,170).

It is noteworthy that all these four species are characterized as having a strong odour as of putrid fish or cucumber. Perhaps it may be assumed that the odour is the same, whatever it may be said to resemble. In the next place, three are referred to *Nolanea* and one to *Naucoria*. I am not disposed to place much reliance upon the presence of one in *Naucoria* as evidence. It is not easy to detect amber-coloured spores from salmon-coloured spores, and as all have apparently elliptical smooth spores of nearly the same size, at least in three out of four, the size and form of spores will not help us, and I doubt much whether the *Ag. cucumis*, with which we are acquainted, may not be as much *Nolanea* as *Naucoria*. At any rate, I should be quite prepared for such a revelation. Then, again, all of them have black, or nearly black, stems, not a common event with slender-stemmed Agarics. Say what we will, there is a suspiciously close alliance between all the species, and if we take the trouble to compare the respective diagnoses of all the four, we shall be no nearer the discovery of good marks of specific difference than by a comparison of the figures. If we strike out from all simultaneously the features in which they coincide, there will be very little left.

*A. nigripes*, Trog. Fr. Hym. Eur., No. 752.

Pileus submembranaceous, conic then campanulate, obtuse, without striae, covered with paler flocci, brown, stem fistulose, twisted, smooth, black; gills nearly free, thin, ventricose, yellow flesh-colour. Smell as of putrid fish. Stem often bent, tough, four to five inches long. Pileus  $1\frac{1}{2}$  in. broad. In swamps.

*A. pisciodorus*, Cesati. Fr. Hym. Eur., No. 753.

Pileus submembranaceous, conic then campanulate then convex, obsoletely umbonate, velvety and soft, fulvous-cinnamon; stem subfistulose, tough, delicately pruinate, chestnut turning blackish, paler at the apex, rather velvety; gills slightly adnexed, gilvous then flesh-colour, at length fulvous. Odour similar to *A. nigripes*, but colour different. On chips and rotten leaves. Spores ovoid-oblong.

*A. piceus*, Kalch. Fr. Hym. Eur., 761.

Pileus submembranaceous, conic then campanulate, papillate, without striae, smooth, pitch-colour, umber when dry; stem fistulose, rather tough, short, even, delicately pruinose, of the same colour; gills emarginate, with a decurrent tooth, ventricose, rather distant, white then flesh-coloured. Odour of cucumber, or fish. In grassy places in moist woods. Spores  $10-12 \times 4$ .

*Ag. cucumis*, Pers. Fr. Hym. Eur., 949. Sacc., 3410.

Pileus rather fleshy, broadly campanulate, smooth, fuscous bay when moist, paler about the margin; stem thin, firm, smooth, fuscous turning black, thickened at the apex, hollow, pruinose; gills slightly adnexed, ventricose, pallid then saffron-yellow. Odour of cucumber. Pileus 1 in. broad, but occurs smaller. Amongst chips. Spores  $9-10 \times 5-6$ .

The following is the condensed form which the descriptions would take if reduced to one species:—

*Agaricus (Nolanea) nigripes*, Trog.

Pileus submembranaceous, conic then campanulate, obtuse, without striae, floccose or velvety, brown: stem fistulose, straight or flexuous, becoming black, smooth, sometimes pruinose and paler at the apex. Gills adnexed, nearly free, thin, ventricose, gilvous then flesh-colour. Smell of putrid fish or cucumber.

(a) *Typica*. Stem flexuous, wholly black, pileus clad with paler flocci. In swamps.

(b) *Pisciodorus*. Stem straight, pruinose, paler at the apex, rather velvety; gills becoming fulvous. Spores ovoid-oblong. Pileus fulvous-cinnamon. On chips.

(c) *Cucumis*. Stem straight, pruinose, firm, thickened above. Pileus smooth, fuscous-bay when moist, paler at the margin; gills pallid then saffron yellow. Spores  $9-10 \times 5-6$ . On chips.

(d) *Piceus*. Stem short, straight, thicker than in the type, pruinose. Pileus papillate, pitchy brown when moist, umber when dry, paler at the margin; gills emarginate with a decurrent tooth, white then flesh-colour. Spores  $10-12 \times 4$ . In moist grassy places.

It must be observed that the only one of these forms which departs from the type in any feature which would warrant specific distinction is the last, which is the only truly aberrant form, in virtue of the robust stem, papillate pileus, and emarginate gills.

If I might venture an opinion, based on the belief that *Ag. cucumis* is not really a good *Naucoria*, but rather a *Nolanea*, I should suggest that *Agaricus nigripes*, *pisciodorus*, and *cucumis* are varieties of one species, call it by whatever name you please, and that *Ag. piceus* has distinctive features which might warrant its retention as a fairly-good species. At any rate, it is an open question, which merits investigation in the light of these suggestions.

Another question of doubt often presents itself to my mind in

connection with *Ag. (Clitocybe) odoratus*. Fries maintains the *Ag. viridis* of Withering, and Bolton's figures (tab. 12), as a distinct species under the name of *Ag. viridis*, but as far as British Fungi are concerned, I feel satisfied that we have only the one species, which is known to us as *Agaricus odoratus*, and, if there is another species, which Fries himself had never seen, it is neither that of Withering nor Bolton, and should have no place in the British list, except as synonymous with *Agaricus odoratus*. As far as France is concerned, Dr. Quelet does not recognize two species, and I am strongly of opinion that at least the two references to Withering and Bolton, under *Ag. viridis*, should be transferred to *Agaricus odoratus*, to which, in my opinion, they alone belong.

As this communication will be interpreted in some sense as a confession of sin, a little justification of that view may be found perhaps in the admission that I feel very suspicious of having fallen into error with regard to *Ag. (Collybia) tuberosus* and *Ag. cirrhatus*. It is at least probable that the colour of tuber is only a question of age, and that what I have figured as two species, are really but one, and that one *Agaricus tuberosus*, whilst *Ag. cirrhatus* has not been figured at all. It may be that the pale tuber is characteristic of *Ag. tuberosus*, and that the black tuber belongs to *Ag. racemosus*. Since the conviction of some error has invaded me I have had no opportunity of collecting and examining specimens so as to arrive at a definite conclusion; under any circumstances it seems that no tuber really belongs to *Ag. cirrhatus*, for some weight must be given to the remark made by Fries under the latter species, in his "Monographia": "Tuber radicale in hac specie numquam adest."

Moreover, in this place I cannot resist the impression, although I have endeavoured to view their differences impartially, that *Ag. (Clitopilus) orcella*, and *Ag. (Clitopilus) prunulus* have no just claims to specific distinction. I am well aware that our friend Dr. Bull had a strong opinion in favour of their being good species, but perhaps he only intended to express his own facility in distinguishing one form from another, and this would apply as well to mere varieties, as to definite species. It is not my intention to pronounce any dictum on what should be the limits of species or varieties, nor do I think it of so much consequence, although in this case I may be permitted to reserve a doubt, which I do not think is merely an individual opinion. I sought the most characteristic specimens for illustration, and yet I cannot recognize a sound specific difference.

Perhaps it would be considered rather heretical in me to doubt in the same manner *Ag. (Lepiota) procerus* and *Ag. (Lepiota) rachodes*, but the larger the number of specimens I examine the more are my doubts strengthened as to their specific differences.

I may observe, in reference to the "Illustrations," that Plate 49 is liable to be misleading. *Ag. (Tricholoma) murinaceus* is there

figured with white gills, but they were cinereous in my original drawing, and have been left white in printing. This was overlooked at the time, but it should be corrected. Again, Plate 167, which represents *Ag. (Tricholoma) virgatus*, has been printed with the pileus so dark that it is scarce recognizable.

I might allude to *Ag. (Tricholoma) argyraceus*. I certainly do not retain the opinion that it is a variety of the very common *Agaricus terreus*. Indeed, I cannot refer it either to *Ag. sculpturatus*, and in my present frame of mind I would rather recognize it as a species separate from either, with its two varieties, *Ag. chrysites* and *Ag. virescens*, both of which are figured in the "Illustrations." I still think that *Ag. orirubens* is only a form of *Ag. terreus*, and possibly *Ag. atro-squamosus*, but of the latter I am by no means certain.

More important, perhaps, is the conclusion I am to announce of a search after *Ag. gangrenosus*, Fr., and although I still consider it in some sense an open question, I cannot divest myself of the suspicion that we, in this island at any rate, have only *Ag. semitulis* to which all specimens and drawings of the supposed *Ag. gangrenosus* should be referred. A glance at the description as well as the figures of *Ag. semitialis* strongly suggest *Tricholoma*, and not *Collybia*, with the gills sinuate or emarginate. Possibly, also, *Ag. (Tr.) immundus* is only a pale form of *Ag. semitialis*. All of them agree in turning black when bruised, or old, and all of them should of right be placed in the same section of *Tricholoma*. Whatever we may say, the subject is at least worthy of further investigation.

Beyond dispute, I should think, since Fries has published his figures of *Hygrophorus laetus* in his "Icones," no one will contend that *Hygr. Houghtoni* can be maintained as distinct. I must profess, also, great scepticism with regard to *Bolbitius Boltoni* and *Bolbitius vitellinus*, at least if the right species have been found and figured in the "Illustrations."

Of course there are causes always at work in such cases which render some of the plates in the "Illustrations" far more satisfactory than others. The first volume, for instance, before the lithographers became accustomed to that particular kind of work, there was a deficiency in the mechanical work of printing which subsequently disappeared. The eye does not become accustomed to the nice distinctions in the tone of colour without experience, and there were difficulties at first in getting softness, and preventing exaggeration of the bright tints. These difficulties disappeared entirely by the time we arrived at *Cortinarius*, which is about the best period artistically of the work. Be that as it may, some plates will always be open to dissatisfaction, whilst others must frankly be conceded to be the best illustrations of given species ever produced in any country. The reproductions were also made from the drawings of various people beside myself, so that in some instances there is a crudeness and stiffness in drawing—and in this respect there is some variety. Some artists

never seem to acquire the power of giving character to their sketches. They may know well enough what they should be, but fail to express it. All these things taken into account, the failures are not numerous. All positive errors it has been my ambition to correct, as soon as possible, and I fancy but few are left.

It must be remembered, too, that the same species will be subject to variation, and though some of the figures are not truly typical, they, nevertheless, represent our insular forms. There is an example of this in *Agar. (Tricholoma) portentosus*; the Plate 54 has been called in question by some continental mycologists, but early this present year I found at Kew, the first time for many years, the exact form which was figured, and submitted it to one or two of my mycological friends with great satisfaction.

I have long felt that Plate 27 was a poor representation of *Ag. (Lepiota) hispidus*, Lasch, even if it deserved to be so called, but the true species was lately found at Carlisle, and is now being printed for the supplement. It has been compared with a drawing made by the illustrious Fries, and no doubt can remain of its accuracy.

Some mycologists contend that *Ag. (Lepiota) Friesii* is only a variety of *Ag. (Lepiota) acute-squamulosus*, but I think that a comparison of the two figures will suffice to carry conviction that they should be maintained as distinct. Again, the identity of *Ag. (Lepiota) meleagris*, Sow., and *Ag. (Lepiota) Badhami*, Berk., it would be folly to insist upon.

The species figured on Plate 33 as *Ag. (Armillaria) aurantius* was soon found to be wrong, and it was called subsequently *Ag. robustus*, but my present opinion is in favour of *Ag. caligatus*, as figured by Barla, rather than *Ag. robustus*. In passing, it may be observed that the pileus in Plate 76 (*Agaricus acerbus*) is much too dark, and rufous. It must not be forgotten that Plate 60 is not *Ag. imbricatus*, which name is attached to it, but *Ag. vaccinus*.

A worthy friend and fellow-member of this Club is at issue with me respecting *Ag. (Clito) giganteus* and *Ag. (Clito) maximus*. I will not enter here upon the discussion, and only repeat my conviction that the two plates are accurate in their representation of the two species; therefore I have no doubt, in the course of time, my antagonist will succumb. If he is one of the first to raise doubts, and pertinacious in insisting on them, he is also most magnanimous in renouncing them as soon as he discovers that they cannot be maintained.

And here I may venture a doubt whether *Ag. (Clito) inversus*, *Ag. (Clito) flaccidus*, and *Ag. (Clito) lobatus* are not all forms of one species.

In the next place, if the figure of *Ag. (Clito) senilis*, from our late friend M. J. Berkeley, whose memory we all revere (Pl. 110), can be referred to that species at all, it must be a very remote form. It may be of interest to state that Berkeley has more than once expressed his conviction to me, that of all the

subgenera of *Agaricus* he considered *Clitocybe* as the most puzzling and difficult. Again I venture to dissent from the "Father of English Mycology," in that I have grave doubts whether his figures of *Ag. (Collybia) acervatus* (Pl. 267) represent the true species.

As to *Ag. (Collybia) balaninus*, B., and *Marasmius erythropus*, Fr., I must continue to hold to the opinion that they are by no means identical if you obtain specimens which are authentic and compare them. The *Ag. (Mycena) excisus*, figured on Plate 148, is a fine species and an interesting one, but I could not insist upon its being referred to *Ag. excisus*, of Lasch; perhaps it is a new and distinct species.

*Ag. (Pleurotus) pantoleucus* (Pl. 179) must, I think, be wrong in colour, but it is a faithful copy.

All I can say of *Ag. (Pleurotus) ostreatus* is that I regard it as a most variable species, and I hardly dare venture to name all the so-called species which I should characterize as some of its varieties.

Passing now from the white-spored to the pink-spored species, my first doubt is of *Ag. gloiocephalus* and *Ag. speciosus*. Is there any sound specific difference? There seems to be a much more feasible distinction between the two forms of *Ag. phlebophorus* on Plate 422, and I am inclined to give way to our Gallic neighbours who regard them as distinct species. I have already remarked elsewhere my conviction that the *Ag. (Clitopilus) carneoalbus*, of Withering, is not the species of Fries and the continental mycologists (Pl. 324).

*Agaricus (Pholiota) erebius*, Fr., will, I presume, be accepted as including also *Ag. (Armillaria) denigratus* and *Ag. leveilleanus*, D. & M. Amongst other species of *Pholiota* I can only allude to *Ag. comosus*, *Ag. heteroclitus*, and *Ag. destruens*, expressing my regret that I cannot find good specific differences between them. I shall purposely pass over *Hebeloma* and *Inocybe* without remark; to commence would be fatal, as the end would not be within an appreciable distance.

Leaving to private opinion, as an open question, the identity of *Ag. (Flammula) inopus* with some of the yellow species of *Hypholoma*, there is but little in *Flammula* which calls for remark. Indeed it is time that these observations came to a close. Something has already been said of *Hypholoma*, and more might be said, but for the present we will rest content with the end of the fourth volume of "Illustrations," and venture no further. To the uninitiated such a paper as this will be sufficiently uninteresting and wearisome, even if not prolonged to an inordinate extent.

Having had the effrontery to issue some 1,200 plates of these gill-bearing fungi, which has now been the persistent work of some years, with only about 12, or not more than 24 more to come, I may be excused from a desire to hold conference with the Woolhope Club on some "controverted Agarics," and unbosom some of my doubts. Some of us old friends can hardly be expected to

meet many times more; let us hope that we have each and all done something for the benefit of our successors, and that we shall leave the study of our favourite little corner in the science of botany better than we found it. Personally, I am thankful for all the encouragement and assistance which has been freely given to me by members of this Club in a long and anxious task. No one could have had more loyal and disinterested help. Had it not been for the Woolhope Club, and especially one of its most amiable and active members, whose loss we cannot cease to deplore, the "Illustrations" would never have been commenced, or brought so near to a successful close.

Upon the conclusion of this paper the Rev. Canon Du Port said:—Ladies and gentlemen,—Dr. Cooke has just told us that it was at the suggestion of some members of the Woolhope Club, and especially of him whose memory, not only in this house, but also wherever the name of Woolhope is named, is still fresh and will always be respected and loved, that he was induced to undertake the publication of his "Illustrations of British Fungi." Not only every member of the Woolhope Club, but every mycologist also, is under the deepest obligation to Dr. Cooke for the production of this unprecedented work—the illustration not of a few pet species found by himself in all stages of growth, and hence easily determined, but the illustration of every species named in the author's "Handbook" and "*quarumcunque aliarum*." The author has to-night confessed that there are a few mistakes in the 1,200 plates already published; and I believe that there are a few more that he has not yet discovered. How could it be otherwise? But this does not in any way detract from the credit due to the author for boldness, accuracy, and industry. Did ever anybody see a first, or even a second or a third edition of a book on Phanerogamous Botany without a very large number of mistakes and misprints? How much more easily will errors creep in, with how much greater difficulty will they be discovered, in a work on Cryptograms? The proofs of Dr. Cooke's illustrations could not be corrected by looking into a dictionary for the spelling of a word, or into a herbarium for a specimen of a plant; a delicate tint not rendered quite correctly here, the omission of a letter there, a name wholly misplaced, and the fact overlooked. How could all these be avoided? Besides all this liability to error due to the mere production of the work, there are errors that have crept into our nomenclature, and that are still, probably in some cases, being handed down by tradition, owing to the method in which names are sometimes assigned to specimens. Fungi are for the most part putrescent in a very rapid manner; they are seldom in a condition to be profitably studied some weeks after they have been gathered, at one's leisure, with description and plates at one's side. There were no figures in existence of a great many before Dr. Cooke's, but they had often to be named by some master in the hunting field itself, and often amidst such a list of freshly-gathered specimens that it

is not to be wondered at if names were sometimes wrongly given; there was no time to discuss the specimen, and an erroneous tradition might possibly be handed down. The king of mycologists, Elias Fries himself, once misled the whole Woolhope Club by writing down through a mere *lapsus calami*, the word *saginus* for *triumphans*. As soon as I had mastered the A B C of the subject, I could not satisfy myself by resting so fully on tradition, and I am afraid at one time I earned a bad reputation as an incorrigible sceptic. The rectification of some names, such as that of *Agaricus storea*, to which Dr. Cooke has alluded this evening, was in some measure due to this sceptical spirit; so perhaps I the more readily render the expression of my unbounded admiration at Dr. Cooke's stupendous work and well-merited success, and foretell the higher honour still which all noble minds will offer to him because of his generous boldness in confessing thus publicly to the few errors to be found in his work.

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## NEW BRITISH FUNGI.

By M. C. COOKE.

(Continued from p. 8.)

**Agaricus (Armillaria) citri**, Inzengi Sic. t. 3, f. 1. Fries Hym. Eur. 46. Cooke Illus. t. 1181.

Cæspitose, pileus fleshy, thin (about 1 inch), rather umbonate, smooth, sulphur-yellow, margin crenulate, becoming whitish, stem slender (2-3 in.  $\times$  1-2 lines), apex whitish floccose, pallid, downwards rufescent, ring spreading, thin, broad; gills adnate, crowded, white. Odour of fresh meal. Spores minute,  $5 \times 4 \mu$ .

On trunks. Kew.

**Agaricus (Clitocybe) occultus**, Cooke Illus. Supp. t. 1184.

Pileus fleshy, convex, then plane, and depressed, even, smooth, but innately virgate (5-7 c.m. diam.), viscid, pallid, smoky about the disc, whitish at the margin, stem equal, or slightly expanded above into the pileus, solid, white, striately fibrillose (4-6 c.m. long, 1 c.m. thick), often curved; gills rather distant and broad (to 5 m.m.), adnate, a little decurrent, scarcely emarginate, white; substance white, tough, cartilaginous.

Gregarious on charred ground. Chingford, Nov., 1883.

Near *Ag. coffeeatus*.

**Agaricus (Collybia) eustyggius**, Cooke Illus. Supp. t. 1185.

Pileus rather fleshy, convex, then plane, sometimes depressed (3-5 c.m. broad), even, smooth, becoming shining when dry, tough, dingy-white, a little darker about the disc, margin thin, smooth, occasionally flexuous, stem stuffed, rarely hollow, attenuated downwards into a rooting base (5-8 c.m. long, 6-8 m.m. thick), white above, sprinkled with small punctate scales, darker below, and

often becoming fuliginous, somewhat longitudinally striate or fibrous; gills rather broad, rounded behind, not crowded, dark grey. Spores white, globose,  $4-5 \mu$ . Odour of rancid meal. Whole plant in drying becoming black.

On the ground. Whitfield.

Allied closely to *Ag. rancidus*.

**Agaricus (Mycena) consimilis**, Cooke Illus. Supp. t. 1186.

Gregarious. Pileus membranaceous, conically campanulate, soon with the margin reflexed ( $2\frac{1}{2}$ -3 c.m. broad), striate to the middle, at length splitting, smooth, opaque, cinereous with the umbo darker. Stem attenuated upwards, often compressed below, rather rigid, dry, smooth, paler than the pileus (4 c.m. long, 2 m.m. thick above, nearly twice as thick below), fistulose; gills slightly adnate, nearly free, linear, scarcely crowded (2 m.m. broad), cinereous. Odour none.

Amongst grass. Kew Gardens.

Similar to *Ag. leptcephalus*.

**Lactarius involutus**, Soppitt. Cooke Illus. t. 1194.

Every part white, with pale ochraceous tinge. Pileus 1-2 in. across, firm, equally fleshy up to the margin, smooth, even, convex, becoming plane or slightly depressed, margin arched, strongly involute, extreme edge minutely silky; gills subdecurrent, densely crowded, very narrow, sometimes forked; spores white, pip-shaped, smooth,  $5 \times 3 \mu$ ; stem solid, equal or slightly incrassated below, glabrous, even, about 1 in. long by 3 lines thick; milk not scanty, white, very hot, unchangeable.

On the ground. Bolton Woods, Yorks.

Resembling *Lactarius vellereus* in miniature, but with the pileus perfectly glabrous. Almost too near to *Lactarius scoticus*.

**Russula (Furcatæ) virginea**, C. & M. Cooke Illus. Supp. t. 1197.

Mild. Pileus fleshy, firm, convex, then depressed (5 c.m. diam.), smooth, even, viscid when moist, polished when dry, margin even, snow white. Stem attenuated upwards, firm, solid (5 c.m. long, 2 c.m. thick at the base), finely rugulose; gills very narrow, crowded, subdecurrent, repeatedly forked, connected by veins, brittle, as well as the stem, quite white. Spores globose,  $4 \mu$ .

On the ground, under trees. Burnham Beeches.

Differing from *R. lactea* in the depressed pileus, rugose stem, and rather crowded, very narrow gills, as well as in the very minute spores.

**Peridermium coruscans**, Fr. S. V. S. 510, Sacc. Syll. 2981.

Pseudoperidia numerous, always longitudinally disposed, at first closed, ellipsoid, then membranaceous, whitish, tubulose, spreading at the apex, pale red; aeciospores for the most part globose, subglobose, or subellipsoid, regular, golden yellow,  $30-35 \times 20-24 \mu$ . Epispore thin, warted.

On foliage of *Abies pinsapo*. Haslemere.

**Gloeosporium affine**, Sacc. Syll. 3707.

Spots variable in size and form, becoming bleached; pustules scattered, mostly on the upper surface, at first covered with the blackened cuticle, then erumpent in tendrils, conidia cylindrically oblong, rounded at the ends,  $14-20 \times 4-6 \mu$ , hyaline, on short filiform basidia.

On leaves of *Hoya* and *Aeschynanthus*, in hothouses. Glasgow.  
(D. A. Boyd.)

**Dactylaria orchidis**, Cke. & Mass.

Scattered. Hyphae single, erect, arising from a thin branched mycelium. Threads septate ( $250-280 \mu$  high,  $10-12 \mu$  thick), rufous orange, divided at the apex into two or three short branches which are again shortly furcate. Conidia fusoid, quadri-nucleate, then tri-septate, hyaline ( $40-50 \times 7-9 \mu$ ), solitary at the apex of all the branchlets, and forming a lax capitulum.

On decaying leaf of *Oncidium macranthum*. Kew.

## BRITISH PYRENOMYCETES.

By G. MASSEE.

(Continued from page 14.)

## S. macularis, Fr., Sacc. Syll. 1873.

On poplar leaves. Apethorpe.

## S. cedema, Fr., Sacc. Syll. 1885.

On elm leaves. Darenth; Wandsworth.

## S. cinerascens, Fckl., Sacc. Syll. 1895; Hdbk. 2758.

On hawthorn, ash, *Sorbus*, *Pyrus*, and *Salix* leaves. Shere; Henlow, Beds.

## S. vaccinii, Cke., Sacc. Syll. 1901; Hdbk. 2759.

On leaves of *Vaccinium myrtillus*. Shere; Hurtwood, Surrey.

## S. brachytheca, Cke., Sacc. Syll. 1903.

On leaves of *Vaccinium vitis-idaea*. Forres.

## \*\* On herbaceous plants.

## S. brassicicola, Duby., Sacc. Syll. 1939; Hdbk. 2768.

On various cruciferous plants. Shrewsbury, Lincoln, Forden, Batheaston.

## S. microspila, B. &amp; Br., Sacc. Syll. 1942; Hdbk. 2767.

On leaves of *Epilobium montanum*. Perth; Shere; Forden.

## S. innumeralla, Karst., Sacc. Syll. 1957.

On *Comarum palustre*. Shrewsbury.

## S. hieracii, Cke. &amp; Mass.

On *Hieracium pilosella*. Tunbridge Wells.

S. isariphora, *Desm.*, *Sacc. Syll.* 1792 ; *Hdbk.* 2763.  
 On leaves of various species of *Stellaria*. Common.  
 S. eryngii, *Wallr.*, *Sacc. Syll.* 1976 ; *Hdbk.* 2761.  
 On dead leaves of *Eryngium*. Hasbro', Norfolk.  
 S. rumicis, *Desm.*, *Sacc. Syll.* 1980 ; *Hdbk.* 2769.  
 On living leaves of various species of *Rumex*. Common.  
 S. plantaginis, *Solm.*, *Sacc. Syll.* 1987.  
 On *Plantago media*. King's Lynn.  
 S. pinodes, *B. & Blox.*, *Sacc. Syll.* 1989 ; *Hdbk.* 2732.  
 On pea stems. Twycross.  
 S. peregrina, *Cke.*, *Sacc. Syll.* 2011.  
 On *Rubia peregrina*. Symonds Yat, Hereford.

#### B. ON MONOCOTYLEDONS.

S. alicina, *Fr.*, *Sacc. Syll.* 2023 ; *Hdbk.* 2770.  
 On *Allium*. Shere.  
 S. brunneola, *Fr.*, *Sacc. Syll.* 2026 ; *Hdbk.* 2777.  
 On Tiger lily and *Convallaria*. Shere, Highgate, King's Cliffe.  
 S. iridis, *Awd.*, *Sacc. Syll.* 2031.  
 On Iris leaves. Shrewsbury.  
 S. chlouna, *Cke.*, *Sacc. Syll.* 2037.  
 On *Phalaris arundinacea*. Shere.  
 S. anarithma, *B. & Br.*, *Sacc. Syll.* 2039 ; *Hdbk.* 2771.  
 On *Aira cæspitosa*. Somerset.  
 S. epistroma, *Cke.*, *Sacc. Syll.* 6067.  
 On straw. Norfolk.  
 S. scirpi-lacustris, *Awd.*, *Sacc. Syll.* 2053.  
 On *Scirpus*. Lynn, N. Wootton.  
 S. caricicola, *Fckl.*, *Sacc. Syll.* 1642.  
 On *Carex*. N. Wootton.  
 S. typhæ, *Lasch*, *Sacc. Syll.* 2060.  
 On *Typha latifolia*. Terrington.

#### C. ON ACOTYLEDONS.

S. pteridis, *Desm.*, *Sacc. Syll.* 2061 ; *Hdbk.* 2765.  
 On *Pteris aquilina*. King's Cliffe ; Eccles, Norfolk ; Forden.  
 S. aquilina, *Fr.*, *Sacc. Syll.* 2063.  
 On *Pteris aquilina*. Darenth.  
 S. filicum, *Desm.*, *Sacc. Syll.* 2065.  
 On *Lastræa filix-mas*. Shrewsbury.

#### D. SPECIES IMPERFECTLY KNOWN.

S. corylaria, *Wallr.*, *Sacc. Syll.* 2072.  
 On hazel leaves. Shere.  
 S. arbuti, *Fr.*, *Sacc. Syll.* 2081.  
 On *Arbutus*. Glencoe, N.B.

*S. atomus*, *Desm.*, *Sacc. Syll.* 2085.

On beech leaves. Shere; Darenth; Wrekin, Shropshire.

*S. aucupariae*, *Lasch.*, *Sacc. Syll.* 2086.

On *Sorbus aucuparia*. Manchester; Trefriew, N. Wales.

SUB-GEN. **Epicymatia**, *Fckl.* Growing on Lichens, 1-3 septate.

*S. vulgaris*, *Fckl.*, *Sacc. Syll.* 2231.

On *Lecanora subfuscata*. Lynn.

*S. thallina*, *Cke.*, *Sacc. Syll.* 2234.

On *Physcia obscura*. Eastbourne.

*S. thallophila*, *Cke.*, *Sacc. Syll.* 2238.

On lichen thallus. Eastbourne; Glen Shee.

GEN. 3. **SPHÆRULINA**. Sporidia 3 or many septate.

*S. myriadea*, *D.C.*, *Sacc. Syll.* 3254; *Hdbk.* 2752.

On oak leaves. Shere, Albury, Neatishead.

*S. Leightonii*, *Berk.*, *Sacc. Syll.* 3532; *Hdbk.* 2764.

On leaves of *Linnæa borealis*. Glen Dole, Clova.

*S. helicicola*, *Desm.*, *Sacc. Syll.* 3454.

On ivy leaves. Carlisle.

*S. hederæ*, *Sow.*, *Sacc. Syll.* 3455; *Hdbk.* 2744.

On ivy leaves. Shere.

*S. empetri*, *Fr.*, *Sacc. Syll.* 3463.

On *Empetrum nigrum*. Shropshire; Scotland.

## AUSTRALIAN FUNGI.

(Continued from p. 5.)

### **Polyporus (Ligni) subzonalis**, *Cooke*.

Suberous, rather thin, rigid, sessile. Pileus reniform, or laterally connate (2-3 in. diam.), pubescent, at length smooth, radiately rugose, faintly concentrically zoned, with numerous linear zones, wholly cream-coloured, substance similar, margin acute, strongly incurved, hymenium nearly of the same colour, pores punctiform, rounded,  $\frac{1}{6} \mu$  diam.

On wood. (Daintree River) Queensland.

Differs from *P. zonalis* in the paler, more pubescent pileus, whitish hymenium, shorter tubes, and larger pores.

### **Fomes (Fomentarii) concavus**, *Cooke*.

Pileus very hard, convexo-flattened, semi-orbicular, deeply decurrent and effused behind, becoming nearly black, concentrically sulcate, and somewhat rugose or tuberculate (4-6 in. diam.),

comparatively thin ( $\frac{1}{2}$ - $\frac{3}{4}$  inch), covered with a hard crust. Substance very thin and floccose, together with the elongated, stratose tubes, wood-coloured, pores very minute, round, regular punctiform, scarcely visible. Hymenium concave, pale ochraceous; margin thin, incurved, flexuous, sterile.

On trunks. Johnstone River, Queensland.

Allied to *F. sulcatus*, Cooke.

\* **Hydnus (Carnosi) crocidens**, Cooke.

Mesopod. Pileus fleshy, thin, plane, rather umbilicate, smooth, even ( $1\frac{1}{2}$  in. diam.), ochraceous yellow; stem central, slender, equal, even, or longitudinally striate, when dry, smooth, of the same colour as the pileus ( $1\frac{1}{2}$  in. long, 2-3 m.m. thick). Spines rather long, aculeate, reaching the stem, but scarcely decurrent, shorter towards the margin, flexible, golden yellow; spores subglobose,  $4-5 \mu$ .

On the ground. Port Phillip.

**Scleroderma umbrina**, Cke. & Mass.

Stipitate, peridium globose ( $2\frac{1}{2}$ -3 c.m. diam.), coarsely rugulose below (when dry), very thin, fragile, and perfectly glabrous above, breaking away irregularly, dirty pale ochre, darkest below; stem equal ( $2\frac{1}{2}$  c.m. long,  $\frac{1}{2}$  c.m. or more thick), coarsely and irregularly furrowed (when dry), dark brown, passing downwards into a dense bulbous mass of intricate mycelium; mass of gleba dark umber-brown; spores globose echinulate, brown,  $10 \mu$  diam.; dissepiments almost obsolete at maturity.

On the ground. Queensland.

**Dothidea (Bagnisiella) rugulosa**, Cooke.

Epiphyllous, or hypophyllous, gregarious, globose, black, rugulose ( $\frac{1}{2}$ - $\frac{3}{4}$  m.m.), cells peripheral, minute; asci oblong, eight spored; sporidia cylindrically elliptical, hyaline,  $22-25 \times 4 \mu$ .

On leaves of *Eucalyptus*. Melbourne. (Martin 203.)

\* **Isaria suffruticosa**, Cke. & Mass.

Subcæspitose, white, 3 c.m. high; stem distinct, simple, smooth or slightly farinose, upwards branched and divided; branches slender, interwoven, with lateral branchlets up to the acute tips; ultimate threads bearing the conidia singly at the apex of short sterigmata, minute, narrowly ellipsoid,  $4-5 \times 1\frac{1}{2} \mu$ .

On hairy caterpillar. New England, Australia. (A. R. Crawford.)

**Strumella sacchari**, Cooke.

Pustules gregarious, erumpent, black, patelloid or subclavate, with a short stem-like base, or cylindrical-multiform ( $\frac{1}{2}$  m.m. diam.) hyphæ short, hyaline, simple; conidia cylindrically elliptical, continuous, pale fuscous,  $10-12 \times 3 \mu$ .

On sugar cane. Queensland. (Bailey 871.)

**Agaricus (Mycena) flavovirens**, Cke. & Mass.

Pileus membranaceous, obtusely campanulate ( $\frac{1}{2}$  to 1 c.m. broad and high), yellowish green, faintly striate when moist, smooth,

stem slender, erect, smooth, even, fistulose, paler than the pileus ( $2\frac{1}{2}$  c.m. long, scarcely 1 m.m. thick). Gills broadly adnate, not crowded, plane lemon yellow. Spores minute,  $5-6 \times 3 \mu$ , white.

On tree ferns. Victoria. (*Mrs. Martin*, 524.)

**Agaricus (Flammula) rubra, Cke. & Mass.**

Pileus fleshy, convex, at length depressed, apparently dry, smooth, even, shining ( $2\frac{1}{2}$  c.m. broad), red, with a tinge of purple; stem equal, hollow smooth, paler than the pileus (4 c.m. long, 4 m.m. thick). Gills rather broad, not crowded, adnate, with a decurrent tooth, at first coloured like the pileus, then dusted with the ferruginous spores, which are elliptic,  $7 \times 4 \mu$ . Flesh, and substance of the gills, permanently roseate.

On the ground. Oakleigh, Victoria. (*Mrs. Martin*, 526.)

**CHAINODERMA, Mass. (n. g.)**

Peridium elongato-fusiform or clavate, tapering into a short stem-like base, wall rather thick, consisting of a single stratum; columella thick, compact, passing quite through the peridium, and firmly attached to the apex; the cavity between the columella and the outer wall is occupied by the gleba, consisting of numerous interwoven septate hyphæ, bearing clusters of tetrasporous clavate basidia at intervals; spores unicellular, coloured. Dehiscence is effected by the splitting of the central portion of the wall into longitudinal shreds, due to the shortening of the columella.

Allied to *Podaxis* in the structure of the gleba, distinguished by the unmistakable tetrasporous basidia bearing the spores on distinct sterigmata, also in the peculiar mode of dehiscence; in the present genus the gleba is not lacunose as in *Secotium*.

**Chainoderma Drummondii, Mass.**

Clavato-fusiform (5-6 c.m. high, by 1·5 c.m. at widest part), peridium dingy brown, smooth, even, columella pale; mass of spores dingy brown; basidia  $50 \times 12 \mu$ , clavate, fasciculate; spores broadly elliptical, with the remains of the sterigma usually persistent, episore thick, smooth,  $10 \times 8 \mu$ . *Secotium Drummondii*, *Berk. in Herb.*

On the ground. Swan River. (*Drummond*.)

The peridium never becomes free from the stem at the base, as in *Podaxis*, but on the shortening of the columella, due to contraction, is bulged outwards and split into ongitudinal shreds, leaving gaping chinks through which the sporels escape.

**Puccinia rumicis-scutati (D.C.), Winter Pilze 187, Sacc. Syll. vi., 2214.**

Sori scattered, or disposed in a circle, irregularly rounded, or (on stems and petioles) elongated, girt by the torn epidermis, brown. Uredospores ellipsoid or ovoid, rarely globose or oblong ( $26-40 \times 20-28 \mu$ ), aculeate, yellow-brown; teleutospores oblong, or clavate, a little constricted in the middle or not at all, incrassated at the apex, rounded or somewhat attenuated, narrowed at

the base into the pedicel ( $38-56 \times 16-28 \mu$ ), slightly brown; pedicel long, persistent brown.

**var. *Muhlenbeckiae*.**

On the upper surface, scattered, sori at first bullate. Teleuto-spores constricted, each cell somewhat triangular ( $36 \times 12 \mu$ ).

On leaves of *Muhlenbeckia adpressa*. Victoria. (Mrs. Martin, 437.)

***Zignoella australica*, Cke. & Mass.**

Peritheciis sparsis, semi-immersis, subconicis, basi ligno insculptis, pertusis, atris ( $\frac{1}{2}$  m.m. diam.). Ascis cylindraceis, sub-stipitatis, octosporis, sporidiis arce fusiformibus, 5-7 septatis, hyalinis ( $40 \times 4 \mu$ ), ad septa non constrictis.

On naked wood. Victoria. (Mrs. Martin.)

***Phyllosticta soriformis*, Cke. & Mass.**

Spots brown, orbicular, with a darker margin (2 m.m. diam), on both surfaces. Perithecia minute, aggregated in the centre of the spots, rather prominent, piercing the cuticle (resembling superficially some Uredine). Sporules elliptic ( $4-5 \times 2 \mu$ ), pale amber colour, hyaline.

On leaves of some Proteaceæ. Victoria. (Mrs. Martin, 518.)

***Septoria phyllodiorum*, Cke. & Mass.**

Perithecia densely gregarious, on both surfaces, without definite spots, often occupying the whole surface, immersed, covered by the cuticle, globose-depressed, black, pierced at the apex. Sporules cylindrical, obtuse at the ends, multinucleate, then 3-5 septate, hyaline,  $40 \times 3 \mu$ .

On phyllodes of *Acacia longifolia*. Victoria. (Mrs. Martin, 532.)

***Marsonia acaciæ*, Cke. & Mass.**

Spots irregular, or confluent, pallid or whitish, with a brown margin ( $\frac{1}{2}-1$  c.m. long). Pustules gregarious on the spots, at length splitting the cuticle irregularly, and ejecting the conidia in tendrils. Conidia cylindrical, rounded at the end, arcuate or sigmoid, or flexuous, uniseptate,  $40 \times 8 \mu$ , hyaline, pale brownish, with granular contents.

On phyllodes of *Acacia*. Victoria. (Mrs. Martin, 506.)

## FUNGI OF NEW ZEALAND.

By M. C. COOKE.

***Secotium virescens*, Mass.**

Peridium ovate, apex acute, basal portion at first attached to the stem, becoming free and expanding, wall coriaceous, even, smooth and shining, pale green; stem below basal attachment of peridium short, incrassated, tapering upwards, solid, smooth and even, yellowish at the base; gleba bright ferruginous orange, cavities small, sub-equal and regular, septa thin; basidia large,

clavate tetrasporous, sterigmata slender, elongated ; spores elliptic-oblong, smooth, bright rusty-orange,  $18-20 \times 7-8 \mu$ .

On the ground. New Zealand. (*Colenso*, 722 b); (*Kirk*, 337.)

Peridium  $3 \times 2$  c.m., stem below basal margin of peridium, .5 c.m. long.

Resembling *S. acuminatum* in shape, but smaller, and differing in colour, polished peridium, and more especially in the spores. A portion of the type specimen of *A. acuminatus* sent by Montagne to Berkeley has pale olive, broadly elliptical spores measuring  $5-6 \times 4 \mu$ .

**Uredo inflata, Cooke.**

Amphigena. Soris irregularibus, bullatis, din tectis (2 mm. long), pallidis. Uredosporis subglobosis, laevibus ( $18 \times 14 \mu$ ). hyalinis, vix tinctis (siccis) episporio crassis, pedicello brevi.

On living leaves of *Ligusticum latifolium*. Campbell Island, New Zealand. (*Kirk*, 346.)

**Uredo Oleariae, Cke.**

Hypophylla. Maculis nullis. Soris subrotundatis, subgregariis, mox apertis, pulverulentibus, aureo-fuscis (1 m.m. diam.). Uredosporis globoso-ovatis, laevibus, pallido flavidis ( $22 \times 15 \mu$ ), breviter pedicellatis.

On living leaves of *Olearia Lyallii*. Port Ross, New Zealand. (*Kirk*, 374.)

**Diatrype elliptica, Cooke & Mass.**

Stromatibus ellipticis ( $7 \times 2\frac{1}{2}-3$  m.m.), atris, opacis, rugulosis. Ostiolaris inconspicuis, matrici basi insculptis, lineo nigro in matrici profunde circumscriptis, contextu pallidis; peritheciis magnis, paucis, ascis cylindraceis, stipitatis, octosporis. Sporidiis linearibus, rectis vel curvulis, utrinque rotundatis, uniseriatis,  $12 \times 5 \mu$  hyalinis.

On decorticated branches. Hawkes' Bay, New Zealand. (*T. Kirk*, 367.)

**Rhytisma (Cocconia) discoidea, Cke. & Mass.**

Orbicularis, convexa ( $1-1\frac{1}{2}$  m.m. diam.) atra, glabra, subnitida, intus olivacea. Ascis clavatis, subsessilibus, octosporis, sporidiis oblongis, uniseptatis, medio leniter constrictis, dilute olivaceis,  $22 \times 5 \mu$ .

On leaves of *Veronica elliptica*. New Zealand. (*Kirk*, 338.)

**Erinella hyalopoda, Cke. & Mass.**

Stipitata, gregaria vel sparsa, alba. Cupula cyathiformia, ( $1-1\frac{1}{2}$  m.m. high,  $\frac{1}{2}$  m.m. broad), tenui, pilis deciduis brevibus, flaccidis ornata, stipite gracili, elongato, hyalino, ad basim incrassato, saepe sursum furcato. Ascis cylindraceo-clavatis ( $150 \times 10 \mu$ ). Sporidiis inordinatis, bacillaribus, multinucleatis ( $35 \times 2-3 \mu$ ) paraphysibus sursum acutis.

On dead *Phormium*. New Zealand. (*T. Kirk*, 340.)

**Isaria aggregata, Cke. & Mass.**

Cæspitosa, stromatibus basi incrassatis, confluentibus, sursum subacutis, simplicibus, rarissime furcatis, subinde compressis

flexuosisve (1 c.m. longis) in corticem fasciculato-erumpentibus, fasciculis gregariis, cinereis, glaucescentibus, conidiis albidis,  $3 \times 2 \mu$ .

On Mahoe bark. Mount Egmont, New Zealand. (*Kirk*, 351.)

**Stemphylium insidens**, Cke. & Mass.

Effusum, atro-fuscum. Hyphis tenuibus, effusis, ramosis, conidiis ad apicem ramulorum solitariis, ellipticis, triseptatis, ad septa constrictis, uno alterove cellulo longitudinaliter divisis, atro-fuscis  $18-20 \times 8 \mu$ .

On leaves of *Pleurophylloides speciosum*. Campbell Island. (*Kirk*, 341.)

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## SCLERODEPSIS.

By M. C. COOKE.

There are a few species hitherto included under the genus *Trametes* which are only there by sufferance, and do not accord with the character of that genus as now understood. For these we have proposed a new location under the generic name which one of its finest species has borne as its specific designation, as follows :—

**Sclerodepsis**, Gen. nov.

Pileus flattened, usually scutate at the base, hard, woody, thin ; margin acute ; substance of pileus thin, continuous with the hymenium ; pores large, rounded or angular, sometimes confluent and elongated, not stratose, edge acute, sometimes dentate.  
= *Trametes*, in part.

To this genus belongs —

**Sclerodepsis colliculosa** (*Berk.*).

= *Trametes colliculosa*, *Sacc. Syll.* 6237.

**Sclerodepsis Berkeleyi**, *Cooke*.

= *Trametes sclerodepsis*, *Berk.*, *Sacc. Syll.* 6209.

**Sclerodepsis lobata** (*Berk.*).

= *Trametes lobata*, *Berk.*, *Sacc. Syll.* 6208.

**Sclerodepsis Beyrichii** (*Fries*).

= *Trametes Beyrichii*, *Fries.*, *Sacc. Syll.* 6201.

The principal features in which the species composing this genus recede from *Trametes* consist in the acute edge of the pileus, the acute dissepiments of the pores (not thick and rounded), which are sometimes dentate, characters incompatible with *Trametes*, in which we conceive an important characteristic to be " pores obtuse, entire."

## SYNOPSIS PYRENOMYCETUM.

(Continued from Vol. xviii., p. 80.)

Fam. 17. MICROTHYRIACEÆ, *Sacc.* Perithecia sub-superficialia, membranacea vel carbonacea, dimidiata, applanata, contextu radiato, centro pertuso vel astoma.

GEN. 1. **MICROTHYRIUM.** Perithecia membranacea.

\* **MYIOCOPRON, Speg.** *Sporidia continua.*

5856. corrientinum, <i>Speg.</i> 5352	5864. orbiculare, <i>Cooke...</i> 5360
5857. dilatatum, <i>B. &amp; Br.</i> 5353	5865. cubense, <i>B. &amp; C....</i> 5361
5858. coffeinum, <i>Ces.</i> ... 5354	5866. orchidearum, <i>Mont.</i> 5362
5859. granulatum, <i>B. &amp; Br.</i> 5355	5867. licatense, <i>P. &amp; B.</i> 5363
5860. oleandri, <i>Pass.</i> ... 5356	5868. baccarum, <i>Rehm.</i> 5364
5861. ilicinum, <i>De Not...</i> 5357	5869. palmarum, <i>Wint.</i> 7323
5862. vaccinii, <i>De Not...</i> 5358	5870. crustaceum, <i>Speg.</i> 7324
5863. smilacis, <i>De Not....</i> 5359	

\*\* **PIPTOSTOMA.** *Sporidia oblonga, curoula.*

5871. spilotum, *B. & Br.* 7325

\* **PARMULARIA.** *Ascis globosis (?)*.

5872. styracis, *Lev.* ... 5365

\*\* **MICROTHYRIUM.** *Sporidia uniseptata.*

5873. microscopicum, <i>Desm.</i> ... 5367	5886. circinans, <i>Speg.</i> ... 5376
5874. paraguayense, <i>Speg.</i> 7327	5887. punctiforme, <i>B. &amp; C.</i> 5377
5875. quercus, <i>Fckl.</i> ... 5386	5888. pulchellum, <i>Speg.</i> 7331
5876. thyriascum, <i>Schulz</i> 7328	5889. gomphisporum, <i>B.</i> & <i>Br.</i> ... 5378
5877. rubi, <i>Niessl.</i> ... 5369	5890. Boivini, <i>Mont.</i> ... 5379
5878. arcticum, <i>Oud.</i> ... 7329	5891. fuscellum, <i>Sacc.</i> ... 5380
5879. minutissimum, <i>Thum.</i> ... 5370	5892. caaguazuense, <i>Speg.</i> 7332
5880. idæum, <i>S. &amp; R.</i> ... 7330	5893. alpestre, <i>Sacc.</i> ... 5381
5881. cytisi, <i>Fckl.</i> ... 5371	5894. lunarieæ, <i>Kunze.</i> ... 5382
5882. juniperi, <i>Desm.</i> ... 5372	5895. albigenum, <i>B. &amp; C.</i> 5383
5883. pinastri, <i>Fckl.</i> ... 5373	5896. citri, <i>Penz.</i> ... 5384
5884. mauritanicum, <i>D.R.</i> & <i>Mont.</i> ... 5374	5897. paradoxum, <i>B. &amp; C.</i>
5885. litigiosum, <i>Sacc....</i> 5375	5898. epimyces, <i>Sacc.</i> ( <i>Bom. &amp; Rouss.</i> )

\*\*\* SEYNESIA. *Sporidia uniseptata, fusca.*

5899. *nobilis*, W. & C. ... 5388 5903. *guaranitica*, *Speg.* 7336  
 5900. *grandis*, *Wint.* ... 7333 5904. *piraguensis*, *Speg.* 7337  
 5901. *Balansæ*, *Speg.* ... 7334 5905. *melanosticta*, *C. & M.*  
 5902. *paraguayensis*, *Speg.* 7335

\*\*\* SACCARDINULA, *Speg.* *Sporidia muralia, hyalina.*

5906. *guaranitica*, *Speg.* 7342

GEN. 2. **CLYPEOLUM**, *Speg.* Perithecia carbonacea.\* *Sporidia didyma, hyalina.*

5907. *atro-areolatum*,  
*Speg.* ... 5385 5909. *minutissimum*, *Speg.* 5387  
 5908. *brasiliense*, *Speg.* ... 5386 5910. *zeylanicum*, *C. & M.*  
 5911. *amazonicum*, *C. & M.*

\*\* VIZELLA. *Sporidia continua, fusca.*

5912. *conferta*, *Cooke* ... 5366 5913. *hieronymi*, *Wint.* 7326

\*\* SCUTELLUM. *Sporidia 2-septata, fuliginea.*

5914. *paradoxum*, *Speg.* 5389 5915. *guaraniticum*, *Speg.* 7338

GEN. 3. **MICROPELTIS**. Perithecia sub-convexa, pertusa.*Sporidia 3-pluriseptata, hyalina.*

5916. *applanata*, *Mont.* 5390 5921. *stigma*, *Cooke* ... 5393  
 5917. *aeruginosa*, *Wint.* 7339 5922. *maculata*, *C. & M.*  
 5918. *marginata*, *Mont.* 5391 5923. *Sprucei*, *Cooke*  
 5919. *viridiatra*, *Wint.* 7340 5924. *depressa*, *C. & M.*  
 5920. *asterophora*, *B. & Br.* 5392

GEN. 4. **PEMP HIDIUM**, *Mont.* Pseudo-peritheciun scutiforme; nucleo gelatinose.*Sporidia fusiformia, continua v uniseptata, fusca.*

5925. *nitidum*, *Mont.* ... 5394 5927. *erumpens*, *B. & C.* 5396  
 5926. *opacum*, *Berk.* ... 5395 5928. *pini*, *Karst.* ... 7341

## FUNGUS FORAYS, 1890.

There is but little to report which is at all satisfactory to the mycologist in the Fungus Forays of the present year. All the results of any moment will be represented on the page devoted to "British Fungi." The weather was as fine as could well be

desired, but the weary walking was in vain, for all kinds of fungi were conspicuously absent, even more so than in the previous two years.

**CRYPTOGAMIC SOCIETY OF SCOTLAND.**—The sixteenth annual Conference was held at Boat of Garten (Station on Highland Railway), on Tuesday, 23rd September, and following days.

**WOOLHOPE FIELD CLUB.**—The annual Forays commenced on Tuesday, Sept. 30, with an excursion to Whitfield, and was the most successful day of the week, although, at the time, it was considered worthy of only a poor estimate. On Wednesday the trip was to Belmont and Haywood Forest, which resulted in nothing of particular interest. Thursday, Oct. 2nd, was devoted to the lawns and grounds of Rotherwas Court, and after the dinner, as well as on the previous evening, several papers were read ; on "Controverted Agarics," by M. C. Cooke; on "The unexpected appearance of two species of Fungus in a field which was under regular cultivation four years ago," by the Rev. Canon du Port; "Remarks on Teratology," by the Rev. J. E. Vize; "The Florula of the Doward Hills—Mosses," by the Rev. Augustin Ley; on "Oyster Culture," by Dr. A. J. Crispi; and on "Trap-door Spiders," by the Rev. J. E. Vize. Friday, the last day, was taken up by an excursion to Devereux Park, by permission of Lady Emily Foley, and a little diversion to Stoke Edith. It was a general impression that even fine weather may be purchased at too high a price.

**ESSEX FIELD CLUB.**—The annual Foray was taken this year in a district remote from Epping Forest, in which the previous Forays have taken place, on Friday and Saturday, Oct. 10th and 11th. Bishop's Stortford having been selected as head-quarters, excursions were made to Hatfield Forest, near Great Hallingbury, and during the two days every effort was made to add to the list of Essex Fungi, by dint of which exertion, not less than twenty species, small and large, were recorded for the first time. Considering the unfavourable season, this was regarded as a somewhat successful issue. The locality was an excellent one, and, in a damp season, would doubtless have been prolific.

**HERTFORDSHIRE FIELD CLUB.**—On Wednesday, Oct. 8th, the annual excursion was taken to Hatfield Park, but as far as we can ascertain nothing was found that was considered specially noteworthy.

**HAMPSHIRE FIELD CLUB.**—Excursion postponed on account of the dryness of the season.

**BURNHAM BEECHES.**—A private excursion to this interesting locality on Oct. 17th was comparatively successful, as 130 species were met with and recorded, and one or two of these possessed considerable interest. It was damper than most of the places visited this year.

M. C. COOKE.

## MEMORABILIA.

**CINTRACTIA AXICOLA** (*Berk.*).—There has been some error in regard to this species. The original type specimen from St. Domingo is not a *Cintractia*, but an *Ustilago*, as are also Australian specimens. The variety B, from Alabama, is the *Cintractia*, from which a fragment must have been sent to M. Cornu, without examination, under the impression that all the specimens under the same name in the Berkeley Herbarium were the same species. Hence there are two species, *Ustilago axicola* (B.) from St. Domingo and Australia, and *Cintractia axicola* (B.) from North America. The former is probably the same as *Ustilago fimbriostylis*, Thumen.

**BRAITHWAITE'S BRITISH MOSS FLORA.**—The thirteenth part contains *Splachnaceæ*, *Edipodiaceæ*, *Funariaceæ*, and the first part of *Bryaceæ*, with six plates. The 14th part is announced to contain the continuation of *Bryaceæ*.

**RUSSULA BARLÆ AND NITIDA.**—By some error of the printer, at page 335 and 336 of the reprint of "Handbook," the varieties *cuprea* and *pulchralis* are placed under *Russula Barlæ* instead of *Russula nitida*. This error occurred in making up the pages, and has only now been detected. Both are varieties of *Russula nitida*, so that the description No. 1236 should precede them.

**GEOGLOSSUM GLABRUM**, *Pers.*—We regret to have to protest against the substitution, in Saccardo's *Sylloge* (viii., p. 43) of *Geoglossum ophioglossoides* for this old and long-established name, the more especially when the similar *Cordyceps ophioglossoides* is liable to be confounded with it.

**SPECIES OF FUNGI.**—The number of species of Fungi enumerated in Saccardo's *Sylloge* is 31,927 (Vol. viii., p. 16). The number included in Streinz *Nomenclatorum* (1862) was 11,893. Not less than 12 or 15 years ago ("Tendencies of Systematic Botany") we estimated roughly that the number was not less than 20,000. At the time it was urged against us that this estimate was too high, and the paragraph was called in question in which we stated that "we think it is a very safe estimate to place the number of species of fungi at 20,000." It appears now that, for a rough estimate, we were at that time tolerably near the truth.

**POLYPORUS PISIFORMIS**, *Kalch.*—The specimen of this fungus, sent to the Editor many years since, when the species was described, is now in the Kew Herbarium, and is a genuine *Polyporus*, although not fully developed. It may be that it is a juvenile form of some well-known species, but, at any rate, it is not the same thing as Herr Bresadola has had under notice as a Gasteromycete.

**ILLUSTRATIONS OF BRITISH FUNGI.**—The publication of the final parts has been delayed in order to include any new or rare

species found in the present autumn. In this manner it has been found possible to issue parts 75 and 76 as *final*, with title pages and index, early in the coming year, and also to bring the letter-press to a close, for which a complete index is in preparation.

**ATTRACTIVE ODOURS IN FUNGI.**—Apropos of a discussion proceeding elsewhere, on the attractiveness, or otherwise, of odours in fungi, the well-known *Russula foetens* might be supposed to furnish an illustration. It certainly seems to be attractive to slugs, since it is usually found more or less eaten by them, but has the *odour* any attraction? Some specimens, we confess, and probably the majority, have a strong foetid odour, but, every season, wet or dry, specimens will be met with possessing no appreciable odour at all, whilst occasionally a few will be discovered which possess a distinctly pleasant fragrant odour. This raises the question whether the odour is of any value, whether attractive or protective, since it is evidently not persistently a feature in *Russula foetens*. We have not noticed whether the inodorous or the fragrant individuals have been bitten by slugs, but our impression is that none of the fragrant examples we have seen have exhibited any trace of slugs. This would be an interesting fact if verified, since *Agaricus odoratus* and *Agaricus fragrans*, with a like odour, are not attacked by molluscs.

**ANIMAL MYCOPHAGISTS.**—The late Mr. James English, of Epping, who was a shrewd observer, and a constant visitor in Epping Forest, at all seasons of the year, has often called attention to the fact that squirrels, which are plentiful in the forest, were very fond of eating the tops of the large species of *Boletus*. We have, in his company, witnessed them in the enjoyment of their feast. The bright yellow, pine-loving species are very rare there, and hence were exempt, as well as the poisonous species of the *luridus* group, but we fancy it to have been *B. pachypus* and *B. impolitus* which were the greatest sufferers. Has any of our readers any knowledge of squirrels eating other fungi than *Boleti*, and if so, which? Are any other rodents addicted to fungus-eating, such as field mice, stoats, weasels, etc.? as we are not aware of any record of such proclivities.

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# Grevillea.

A QUARTERLY RECORD OF CRYPTOGAMIC BOTANY  
AND ITS LITERATURE.

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## INDEX LICHENUM BRITANNICORUM.

BY THE REV. J. M. CROMBIE, F.L.S.

### PART II.

(Continued from Vol. XVIII., p. 70.)

- m Stirps, *L. cinereæ*.
- Sp. 151 *L. Bockii* (*Rodig.*), *Fr. fil.*  
f. pauperata, *Nyl.*
- 152 *L. superiuscula*, *Nyl.*
- 153 *L. leucophyma*, *Leight.*
- 154 *L. oculata* (*Dcks.*)
- 155 *L. cinerea* (*Ach.*), *Smmrf.*  
f. lepidota, *Leight.*  
\* *L. epiglypta*, *Nyl.*
- 156 *L. intermutans*, *Nyl.*
- 157 *L. alpina*, *Smmrf.*
- 158 *L. cinereorufescens* (*Ach.*), *Nyl.*  
f. diamarta (*Whlnb.*), *Nyl.*
- 159 *L. recedens* (*Tayl.*), *Nyl.*
- 160 *L. pelobotrya*, *Smmrf.*
- 161 *L. gibbosa* (*Ach.*), *Nyl.*  
f. fimbriata (*Ach.*), *Cromb.*  
β. zonata (*Ach.*), *Cromb.*  
\* *L. depressa* (*Ach.*), *Nyl.*
- \*\* *L. subdepressa*, *Nyl.*
- \*\*\* *L. lusca*, *Nyl.*
- 162 *L. cæsiocinerea*, *Nyl.*  
β. obscurata (*Fr.*), *Nyl.*
- 163 *L. calcarea* (*L.*), *Nyl.*  
β. contorta (*Ach.*), *Nyl.*  
f. monstrosa, *Lamy.*  
γ. Hoffmanni (*Ach.*), *Nyl.*

164 *L. lacustris* (*Witt.*), *Fr. fil.*  
      $\beta.$  *cyrtaspis* (*Ach.*).  
 165 *L. Dicksonii* (*Ach.*), *Nyl.*  
     *f. atrata* (*Ach.*), *Cromb.*  
 166 *L. flavidula*, *Hep.*  
 167 *L. verrucosa* (*Ach.*), *Nyl.*  
 168 *L. poriniformis*, *Nyl.*  
 169 *L. Prevostii* (*Fr.*).  
     *f. melanocarpa* (*Kphb.*).  
     *n* *Stirps*, *L. epuloticæ.*  
 170 *L. epulotica* (*Ach.*), *Nyl.*  
      $\beta.$  *affinis* (*Mass.*), *Nyl.*  
 171 *L. chrysophana* (*Krb.*), *Nyl.*  
     *o* *Stirps*, *L. intercinctæ.*  
 172 *L. decineta*, *Nyl.*  
     *p* *Stirps*, *L. holophææ.*  
 173 *L. holophææ* (*Mat.*), *Nyl.*  
      $\beta$  *glauropsora*, *Nyl.*  
 174 *L. leucospeirea*, *Nyl.*  
 175 *L. Ralfsii* (*Salw.*), *Cromb.*  
     *q* *Stirps*, *L. cervinæ.*  
 176 *L. squamulosa* (*Schrad.*), *Nyl.*  
 177 *L. cervina* (*Pers.*), *Nyl.*  
 178 *L. percaenoides*, *Nyl.*  
 179 *L. pelioscypha* (*Whlnb.*), *Nyl.*  
 180 *L. glaucocarpa* (*Whlnb.*), *Nyl.*  
      $\beta.$  *depauperata* (*Krb.*), *Cromb.*  
     *f.* 1 *pruinifera*, *Cromb.*  
         2 *denudata* *Cromb.*  
 181 *L. fuscata* (*Schrad.*), *Nyl.*  
 182 *L. rufescens* (*Borr.*), *Nyl.*  
 183 *L. rhagadiza*, *Nyl.*  
 184 *L. smaragdula* (*Whlnb.*), *Nyl.*  
     *f. sinopica* (*Sm.*), *Nyl.*  
 185 *L. admissa*, *Nyl.*  
 186 *L. discreta* (*Ach.*), *Nyl.*  
 187 *L. Heppii* (*Naëg.*).  
     *r.* *Stirps*, *L. pruinosaæ.*  
 188 *L. pruinosa* (*Sm.*), *Nyl.*  
     *f. nuda*, *Nyl.*  
 189 *L. eucarpa*, *Nyl.*  
 190 *L. privigna* (*Ach.*).  
 191 *L. hypophæa*, *Nyl.*  
 192 *L. simplex* (*Dav.*), *Nyl.*  
     *f. herpes* (*Norm.*), *Cromb.*  
     *f. complicata* *Cromb.*  
         *s* *Stirps*, *L. rubræ.*  
 193 *L. rubra* (*Hffm.*), *Ach.*

*Genus II. DIRINA, Fr.*Sp. 1 *D. repanda* (*Fr.*), *Nyl.*Sub-Tribe III. **P. Pertusariei**, *Nyl.**Genus I. PERTUSARIA, D. C.*

- Sp. 1 *P. bryontha* (*Ach.*), *Nyl.*
- 2 *P. dactylina* (*Ach.*), *Nyl.*
- 3 *P. Hutchinsiæ* (*T. & B.*), *Nyl.*
- 4 *P. melanochlora* (*D. C.*), *Nyl.*
- 5 *P. monogona*, *Nyl.*
- 6 *P. urceolaria*, *Nyl.*
- 7 *P. concreta*, *Nyl.*
  - f. *Westringii* (*Ach.*), *Nyl.*
- 8 *P. communis*, *D. C.*
  - f. *rupestris*, *D. C.*
- 9 *P. areolata* (*Clem.*), *Nyl.*
- 10 *P. ceuthocarpa* (*Sm.*), *Hook.*
  - f. *variolosa*, *Mudd.*
- 11 *P. coccodes* (*Ach.*), *Nyl.*
  - f. *bacillosa*, *Nyl.*
- 12 *P. velata* (*Turn.*), *Mudd.*
  - f. *aspergilla* (*T. & B.*), *Cromb.*
- 13 *P. globulifera* (*Turn.*), *Nyl.*
  - f. *discoidea* (*Ach.*), *Nyl.*
- 14 *P. multipuncta* (*Turn.*), *Nyl.*
- 15 *P. amara* (*Ach.*), *Nyl.*
- 16 *P. ophthalmiza*, *Nyl.*
- 17 *P. reducta* *Strn.*
- 18 *P. dealbata* (*Ach.*), *Nyl.*
  - f. *corallina* (*L.*).
- 19 *P. lactea* (*Schær.*), *Nyl.*
- 20 *P. pustulata* (*Ach.*), *Leight.*
- 21 *P. melaleuca* (*Sm.*), *Leight.*
- 22 *P. lactescens*, *Mudd.*
- 23 *P. Wulfenii*, *D. C.*
  - f. *carnea* (*T. & B.*), *Fr.*
  - $\beta$  *rupicola* (*Schær.*), *Nyl.*
  - $\gamma$  *glabrescens*, *Nyl.*
- 24 *P. lutescens* (*Hffm.*), *Nyl.*
- 25 *P. leioplaca* (*Ach.*), *Schær.*
- 26 *P. glomerata* (*Ach.*), *Schær.*
- 27 *P. carneopallida*, *Nyl.*
- 28 *P. xanthostoma*, *Smrrf.*
- 29 *P. inquinata* (*Ach.*), *Fr. fil.*
- 30 *P. nolens*, *Nyl.*
- 31 *P. gyrocheila*, *Nyl.*
- 32 *P. fastigiata* (*T. & B.*), *Leight.*

*Genus II. VARICELLARIA, Nyl.*Sp. 1 *V. microsticta, Nyl.*Sub-Tribe IV. **Thelotremei, Nyl.***Genus I. PHLYCTIS, Wallr.*Sp. 1 *P. agelaea (Ach.), Krb.*  
2 *P. argena (Flk.), Wallr.**Genus II. THELOTREMA, Ach.*Sp. 1 *T. lepadinum, Ach.*  
β *scutelliforme, Ach.*  
2 *T. subtile, Tuck.**Genus III. URCEOLARIA (Ach.), Nyl.*Sp. 1 *U. scruposa (L.), Ach.*  
\* *U. bryophila (Ehrb.), Nyl.*  
f. *ecrustacea, Nyl.*  
2 *U. gypsacea (Ach.), Nyl.*  
3 *U. actinostoma, Pers.*  
β *cæsioplumbea, Nyl.*ADDEDA ET CORRIGENDA IN *Lecanora*.*L. murorum\** decipiens (*Arn.*), *Nyl.**L. aurantiaca\** irrubescens, *Nyl.**L. glaucoma\** subradiosa, *Nyl.**L. prosechoides* f. dilutior, *Nyl.**L. tenera, Nyl.**L. piniperda\** glaucella (*Flk.*), *Nyl.**L. fugiens, Nyl.* (ante *L. metaboloides, Nyl.*).*L. ventosa* f. *lævigata, Johns.*Pro. *L. nigricans (Tuck.), Lege phæocarpella, Nyl.*Delete *L. circinata (Pers.).*

## AUSTRALIAN FUNGI.

(Continued from p. 47.)

**Trabutia phyllodiæ, Cke. & Mass.**

Perithecia innate, convex, brown, 4 to 10, seated on orbicular stromatoid spots, pierced with a pore at the apex, for some time covered by the discoloured cuticle. Asci clavate-cylindrical, octosporous. Sporidia oblong, straight or very slightly curved, continuous, granulous within,  $20-24 \times 10 \mu$ , paraphyses numerous, slightly tinged with brown.

On phyllodes of *Acacia longifolia*. Victoria (Martin 582).

***Sphærella nubilosa*, Cke.**

Hypophyllous. Spots orbicular or confluent and irregular, glaucous brown, soon falling away. Perithecia numerous, very minute ( $40-60 \mu$  diam.), scarcely visible to the naked eye, depressedly globose, membranaceous, brown, pierced at the apex. Ascii clavate, 8-spored, sporidia fusiform, 2-4 nucleate then uniseptate, hyaline,  $16 \times 3 \mu$ .

On living leaves of *Eucalyptus*. Victoria (Martin 584).

***Erinella lutea*, Phil.**

Gregarious or scattered, shortly stipitate, cupulate, clothed at first with short whitish hairs, which become yellow, then yellowish brown; margin at first inflexed, then when moist erect; hymenium orange-yellow; ascii broadly clavate, narrowing to an obtuse point at the summit; sporidia 8, linear, multiseptate,  $76-102 \times 5-6 \mu$ ; paraphyses slenderly filiform.

On the bark of a tree, growing in the crevices of the bark, often in rows. Victoria, Australia.

The cups are  $\frac{1}{2}$  to 2 lines broad; the stem short, stout, glabrous, and usually dark-brown, sometimes nearly absent. The hairs are about  $60-70 \times 3-4 \mu$ , slightly granular (in No. 368 septate); the ascii are  $105 \times 15-17 \mu$ .

This is near *Erinella mniopsis* (Ell.), Sacc., and *E. calospora*, Pat. and Gaill., but differs from the first in its straight, yellow brown hairs, and from the last, not only in the colour of the hairs, but in the stouter sporidia and slenderer paraphyses.

***Ombrophila trachycarpa*, Phil.**

Subgregarious, sessile, concave, glabrous, wrinkled horizontally on the exterior, margin even, somewhat incurved; firm, cartilaginous-gelatinous, dark red-brown throughout, paler within; ascii cylindrical, narrowed near the base; sporidia 8, elliptic, tending to fusiform, furnished with one large guttule, granulated on the surface,  $20-25 \times 10-14 \mu$ ; paraphyses rather stout, enlarged at the summits, septate.

On sandy ground amongst mosses, probably growing on their protonema. Victoria, Australia.

Cups  $\frac{1}{4}$  to  $\frac{3}{4}$  of an inch in diameter; ascii  $202 \times 14 \mu$ . This is a close ally of *O. terrestis*, but the rough sporidia alone separate it from that species.

***Phyllosticta Platylobii*, C. & M.**

Spots irregular on both surfaces, pallid, with a narrow brown margin. Perithecia on the under surface, very minute, membranaceous, rather prominent sporules minute, hyaline,  $3 \times 1 \mu$ .

On living leaves of *Platylodium*. Victoria (Martin 591).

***Gleosporium pestiferum*, Cke. & Mass.**

Pustules gregarious, subcuticular, small, discoid, convex, roseay. Conidia oozing out and forming pink nodules resembling a small *Tubercularia*, cylindrical, rounded at the ends, straight, continuous granular within, hyaline,  $14-15 \times 3-4 \mu$ .

On twigs, peduncles, and fruit of *Vitis vinifera*. Brisbane (*F. M. Bailey* 881).

Very destructive to vines.

**Marsonia deformans, Cke. & Mass.**

Epiphyllous. Pustules gregarious, often confluent, brown, distorting the foliage, convex or flattened, sometimes on large indeterminate, discoloured spots. Conidia oblong, uniseptate, constricted at the septum, hyaline,  $15-16 \times 5 \mu$ .

On cultivated peas, chiefly on the leaves, stipules, petioles, etc. Victoria (*Martin* 593).

## TWO JAPANESE EDIBLE FUNGI.

We have been somewhat surprised to receive a copy of two numbers of a Botanical Magazine from Japan, which contain descriptions of two new species of edible fungi, by Mr. N. Tanaka, accompanied by two excellent and characteristic coloured plates, not in the style of Japanese, but in that of European art. The descriptions are as follows :—

" In Japan Hatsudake has a very wide range of growth, and is one of the common edible fungi, highly appreciated almost all over the country. It appears chiefly in pine woods, and in great abundance in early autumn, previous to many other edible species ; hence the name of 'Hatsudake' or 'first fungus.' In the vicinity of Tokyo it grows abundantly at Matsudo and Kogane, in the province of Shimōsa. In its season it is sold in vegetable markets in small shallow baskets made of bamboo. In preparing it for the market the lower portion of the stalk is cut off, and the pileus placed upside down in the basket. Each basket contains about twenty or thirty of the fungi, and the whole is covered with large fresh leaves, such as those of *Lappa major*, to prevent the fungi from drying. Of these fungi thus exposed to sale we can distinguish two different species, one of which is the ordinary Hatsudake, and the other an allied species commonly called 'Akahatsu.' They are often put together in one basket, and are collectively called by the common name of 'Hatsudake ;' but they can easily be distinguished one from the other by the difference in colour of their gills. Akahatsu is much inferior in its taste to Hatsudake ; hence its market value is also much less than that of the latter.

Although these fungi were already described by our old writers in many botanical works, yet their systematic position has yet been unsettled. Hatsudake and Akahatsu can easily be recognized to be species of *Lactarius* by their general characters, and especially by their milky gills. On account of this well-marked character and its esculent nature, Hatsudake has been confounded with *Lactarius deliciosus* (L.), Fr., by different writers. The specific characters of Hatsudake, Akahatsu, and *Lactarius deliciosus* (L.), Fr., are as follows :—

**1. *Lactarius Hatsudake*, Tan.**—Pileus fleshy, 1-10 c.m. broad, at first hemispherical, then expanded, umbilicate, viscid, zoned, smooth, dirty brown and slightly tinted with pink; margin smooth, at first incurved; stem stuffed, then hollow, pinkish, pruinose, subequal, short, 1-3 c.m. long; gills decurrent, often branched, rather broad, broadest in the middle, purplish brown, then bluish; juice aromatic, dull pinkish brown; spores echinulate, nearly spherical or ovoid, subhyaline, 8-10  $\mu$  in diameter.

**2. *Lactarius Akahatsu*, Tan.**—Pileus fleshy, 2-8 c.m. broad, at first hemispherical, then expanded, umbilicate, viscid, absolutely zoned, smooth, yellowish red, then pale; margin smooth, at first incurved, paler, at length slightly repand, rather thin and acute; stem 1-4 c.m. long, nearly equal, curved, stuffed, then hollow, yellowish, pruinose; gills decurrent, orange, then greenish, rather thin (narrower than those of *L. Hatsudake*), broadest in front; juice orange, aromatic; spores echinulate, nearly spherical or ovoid, subhyaline, 9-11  $\mu$  long and 6-8  $\mu$  in diameter.

**3. *Lactarius deliciosus* (L.), Fr.**—Pileus fleshy, 2-11 c.m. broad, convex, umbilicate, viscid, zoned, smooth, reddish-yellow, then pale; margin smooth; stem 8 c.m. long, stuffed, then hollow, rather spotted; gills subdecurrent, yellowish, then pale, when bruised green, juice aromatic, reddish-yellow; spores spheroid, echinulate, subhyaline, 7-8  $\mu$  in diameter, or 9-10  $\mu$  long and 6-8  $\mu$  broad. Colour variable; pileus sometimes zoneless.

By comparing the above descriptions it is evident that the three fungi are quite distinct from one another, and we recognize a much closer resemblance between the second and third rather than between the first and second or first and third.

As no species of *Lactarius*, which has the characters perfectly coincident with either *Hatsudake* or *Akahatsu*, has yet been described, I consider both of them to be new species, and deem it convenient to distinguish them by their native names.

A Japanese species of *Lactarius*, under the name of *L. lividatus*, B. & C., is given in Saccardo's *Sylloge*. It closely resembles *Hatsudake* in its characters, but it is placed in the tribe *Russularia*, the species of which have white milk at first, while *Hatsudake* has dull purplish brown milk.

As regards the structure of *Hatsudake*, it is to be observed that groups of broad roundish cells appear to be set in a weft of slender elongated hyphæ. The large-celled groups are sharply defined from the strands of slender hyphæ. In transverse section, especially in the stem, the cells of many of the large-celled portions are ovoid or wedge-shaped, and are so arranged as to form a rosette; other groups show two rosettes. The small circular centre of the rosette is formed by an elongated hypha, which runs longitudinally through the groups of large-celled tissues. The groups of large-celled tissues become fewer and smaller towards the under surface of the pileus. The laticiferous tubes run through

the strands of fine hyphal tissue, but without entering the large-celled groups. They are found especially in the fine hyphal tissues, near the under surface of the pileus, and in the trama, where they spread very much and are often branched; in the stem they are usually found in the outer region. These tubes are thicker than the surrounding hyphae, and are filled with brownish turbid latex. They often send out numerous strong branches in every direction, and the stronger branches again send out short and delicate branchlets with slender closed extremities. The foregoing account agrees very well with Prof. De Bary's statements in regard to the structure of *L. subdulcis*, Fr. The subhymenial tissue is composed of small isodiametric cells, which show by their arrangement that they are members of the interwoven hyphae. The hymenial layer itself consists of the terminal cells of the subhymenial hyphae, closely packed together and placed vertically to the surface. The larger number of these cells develop into basidia; the rest remain sterile and form the paraphyses. When the basidium has reached its full size, the sterigmata make their appearance on its rounded apex; and when they have arrived at a certain length, their extremities swell into a vesicle, which gradually acquires the form, size, and structure of a mature spore. The basidium is filled with finely granulated protoplasm, but as the spore advances to maturity the protoplasm of the basidium passes into it, and after the isolation of the spore the basidium at length becomes almost empty. The number of sterigmata borne on a basidium is two or four. The mature spore is spherical or ovoid,  $8-10 \mu$  in diameter.

As regards the structure of Akahatsu, it agrees in the main with that of Hatsudake; but the basidia, paraphyses, and spores of the former are much larger than those of the latter."

## BRITISH THELEPHOREI.

(Continued from p. 30.)

### **STEREUM. Fries.**

Hyménium definitely inferior, coriaceous, intermediate stratum fibrillose, distinct from the inodermeous pileus, even, smooth, unchangeable; spores continuous, hyaline or olive.

I. **MESOPUS.** *Pileus rather funnel-shaped, stem distinct, central, rarely obsolete.*

**Stereum Sowerbeii** (Berk.). *Mass. Thel.* 104. *Thelephora Sowerbeii*, *Berk. Outl.* p. 266. *Cooke Handb.* No. 890. *Stev. B. F.* II., 261. *Elvella pannosa*, *Sow. t.* 155.

Snowy white, infundibuliform, soon discoloured, acutely scabrous above (1-2 in. high), stem variable, distinct, or confluent at the base, hymenium smooth; spores ellipsoid, hyaline,  $5 \times 4 \mu$ .

On the ground.

**Stereum multizonatum**, Berk. & Br. Ann. Nat. Hist. III., t. xv., p. 321, pl. 13, f. 4. Mass. Mon. 107. Cooke Handb. No. 891. Stev. B. F. II., 262.

Pileus multiplex, infundibuliform, variously lobed, arising from the confluent stems, bright reddish flesh colour above, many times zoned with darker zones, margin lobed and crenulate; hymenium ribbed, paler, smooth; spores ellipsoid, hyaline,  $8-9 \times 4-5 \mu$ .

On the ground. Epping.

II. PLEUROPUS. *Pileus spathulate and fan-like, attenuated at the base into a more or less distinct stem.*

No British species.

III. APUS. *Pileus dimidiate, sessile, or at first resupinate, then effusedly reflexed, marginate.*

**Stereum hirsutum**, Fries Hym. Eur. 639. Mass. Mon. 181. Hussey I., pl. 58. Sow. t. 27. Cooke Handb. No. 911. Stev. B. F. II., 268.

Coriaceous, pileus effused and reflexed, strigosely hairy, rather zoned, becoming pale, margin rather obtuse, yellow; hymenium even, smooth, naked, without juice; yellowish ochre, with varying shades; spores globose,  $5 \mu$  diam.

On trunks and branches. Common.

var. **subcostatum**, Karst. Hedw. 1881, p. 178.

Hymenium naked, vaguely costate; yellowish white, bright flesh colour or glistening at the base.

On trunks.

**Stereum ochroleucum**, Fries Hym. Eur. 639. Mass. Mon. 184. Stev. B. F. II., 267.

Pileus coriaceous, rather thick, free, expanded, flaccid, silky, zoned, hoary white; hymenium even, smooth, becoming yellowish, cracking when dry; spores ellipsoid, or subglobose,  $8 \times 6-7 \mu$ .

On wood and bark.

**Stereum purpureum**, Pers. Obs. Myc. II., 92. Fr. Hym. Eur. 639. Mass. Mon. 186. Cooke Handb. No. 910. Huss. I., pl. 20. Sow. pl. 388. Stev. B. F. II., 268.

Coriaceous, soft; pileus effusedly reflexed, rather imbricate, zoned, coarsely tomentose, pallid or whitish; hymenium naked, even, smooth, purplish; spores ellipsoid,  $7-8 \times 4 \mu$ .

On trunks, branches, etc.

**Stereum sanguinolentum**, Fries Hym. Eur. 640. Mass. Mon. Thel. 189. Grev. Sc. Crypt. Fl. t. 225. Cooke Handb. No. 913. Stev. B. F. II., 269.

Coriaceous, thin; pileus effused and reflexed, adpressedly silky, rather striate, pallid, margin acute, white; hymenium even, smooth,

grey then brownish, bleeding when bruised, pruinose when old ; spores cylindrically elliptic, slightly curved,  $8-9 \times 4-5 \mu$ .

On pine and other wood.

**Stereum disciforme**, Fries Hym. Eur. 642. Mass. Mon. Thel. 189.

Rather coriaceous, white ; pileus resupinate, disc-shaped, determinate, margin thin, free, naked ; hymenium unequal, powdery ; spores subglobose,  $16-18 \mu$  or  $18 \times 15-16 \mu$ .

On oak.

**Stereum spadiceum**, Fries Hym. Eur. p. 640. Mass. Mon. Thel. 190. Cooke Handb. No. 912. Stev. B. F. II., 268.

Coriaceous, pileus effused and reflexed, villose, somewhat ferruginous ; margin rather obtuse, white ; hymenium smooth, tawny when growing, bleeding if wounded ; spores ellipsoid,  $8 \times 5 \mu$ .

On trunks. Common.

**Stereum rugosum**, Fries Hym. Eur. p. 643. Mass. Mon. Thel. p. 191. Cooke Handb. No. 914. Stev. B. F. II., 240.

Corky, rigid ; pileus effused and shortly reflexed, obtusely marginate, at length smooth, bay brown ; hymenium unpolished, pruinose, rather bleeding when wounded ; spores cylindrically elliptic, obtuse at each end,  $10-12 \times 4-5 \mu$ .

- A. hymenium yellowish.
- B. hymenium livid grey.

On trunks. Common.

**Stereum vorticosum**, Fries Hym. Eur. p. 639. Mass. Mon. Thel. p. 194. Stev. B. F. II., 268.

Pileus coriaceous, effused and reflexed, obscurely zoned, strigosely hairy, pallid ; margin of the same colour ; hymenium rather veined, smooth, purplish ; spores ellipsoid,  $7 \times 4 \mu$ .

On bark and wood.

Intermediate between *S. purpureum* and *S. hirsutum*.

**IV. RESUPINATI.** *Adglutinate, effused ; margin not, or scarcely, free.*

**Stereum rufum**, Fries Hym. Eur. 644. Mass. Mon. Thel. 198. Stev. B. F. II., 271.

Between coriaceous and cartilaginous, erumpent, tuberculiform, then somewhat rounded, marginate, rufous, becoming brownish, smooth beneath ; hymenium pruinose, grey, at length bullate and tuberculous, finally cracking ; spores ellipsoid,  $6-7 \times 4 \mu$ .

On bark of lime. Scotland.

**Stereum Pini**, Fries Hym. Eur. 643. Stev. B. F. II., 271.

Pallid, coriaceous, cartilaginous, adnate as a shield, rather

marginate, smooth beneath, at length bullate ; hymenium purple flesh colour, then fuscous, pruinose ; spores  $6 \times 4 \mu$ .

On pine bark.

**Stereum frustulosum**, Fries Hym. Eur. p. 643. Mass. Mon. Thel. p. 199. Stev. B. F. II., 270.

Woody, resupinate, tuberclose, crowded and somewhat confluent, then apparently broken into frustules, beneath and obsoletely marginate circumference smooth, bay brown, turning blackish ; hymenium convex, cinnamon, growing pale, pruinose ; spores ellipsoid, rather acute at the ends,  $4-5 \times 3-3\frac{1}{2} \mu$ .

On wood and bark.

**Stereum acerinum**, Fries Hym. Eur. p. 645. Mass. Mon. Thel. p. 202. Cooke Handb. No. 915. Stev. B. F. II., 271.

Crustaceous, adnate, even, smooth, snowy white ; often sterile ; spores ellipsoid,  $6 \times 3-4 \mu$ .

On living bark of *Acer campestris*, etc.

**Stereum stratosum**, Berk. & Br. Ann. Nat. Hist. ser. v., vol. XII., (1883), p. 574. Mass. Mon. Thel. p. 203. Stev. B. F. II., 271.

Effused, bright ochraceous-white, smooth, becoming yellowish, here and there rugose ; substance pallid, stratose, the strata at length separating.

On bark (?). Penzance.

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## CONFessions OF A MYCOPHAGIST.

A disinterested spectator at one of the Fungus Forays, now habitually organized by local Natural History Societies, will recognize three distinct classes of individuals which make up the marauding band. They all start with the single object in their minds of having a social day in the hunting field. It is to be a hunt, on a small scale, a sort of travestie of the bigger hunts of more aristocratical renown, but much of the old spirit of the chase gives life to the Foray. There is a dash of enthusiasm and excitement, a hope and a struggle to be "in at the death." The most interested of the three parties is generally the smallest one, composed for the most part of steady-going old fogies, with books in their pockets, and a basket on their arms, directing a keen restless gaze in all directions, quiet and reserved in their demeanour, but evidently meaning business. This is the scientific section, each individual of which is on the hunt for something new or rare, anything, ever so minute, which is capable of bearing a long name never heard in that locality before. Little regard is paid to the

scores of familiar forms scattered over the ground; familiarity seems to breed contempt; it is not the known, but the unknown, they are in search of, and the only service they seem to be to the general company is that of a court of appeal, a peripatetic storehouse of Latin names, to be called upon whenever required, but alas too often incomprehensible and unsatisfactory to the inquiring spirit. The second class consists of what an old hand calls the "pot-hunters," those who look upon all fungi as divided into the edible and the useless, and whose ulterior object for the day is confined to the prospect of a mushroom breakfast for the following morning. The third class is made up of the ladies, who have joined the excursion because it is a novelty, or out of curiosity to discover what forays are like, or for some other reason concealed in the feminine breast; and young men, whose chief occupation is to pick off the "burrs" and disentangle the briars from the dresses of the ladies, supplemented by the Society officials, and such of the Society members as make it a rule to patronize all excursions, irrespective of their object, for the sake of the Society. We may dispense with any further allusion to the third class, and the first class is competent to take care of itself, but the second class includes the most promising elements, and cannot be so summarily dismissed. It has been very much the custom for scientific fungus-hunters, that is, those who participate in fungus excursions for scientific purposes, to under-rate and deprecate those who disavow all scientific interest, and confine themselves to the utilitarian object of fungus eating. This is manifestly an error of judgment, since the ranks of the former are mostly recruited from those of the latter. Let an illustration suffice. Very many years ago it was my good fortune to be introduced to an East Anglian gentleman who resided in a small agricultural village not ten miles from Norwich. I had been invited to give a gossiping lecture to the rustics in the schoolroom, and was asked to take a preliminary tea with the squire. It soon became manifest that the hobby of my host was "edible fungi," a subject of which I was then profoundly ignorant, but I became greatly interested in the discovery that there were other fungi beside the mushroom which might be eaten, and I had the pleasure of looking over his portfolio of coloured drawings, and hearing his explanations and encomiums. This was my first inspiration to turn my attention to "toadstools." I had never seen them before, or at least with an appreciative eye, and the subject came upon me as a revelation. At first I did, as so many others have done, restricted my interest to their edible qualities, and had no ambition beyond being able to recognize, collect, and devour some half-dozen different kinds of "toadstools," which, in all my surroundings, I had been taught to regard as "rank pisen." Since that eventful evening I have never abandoned the pursuit, and it has been my solace for more than forty years.

The first addition to my gastronomic list was a fortunate one, because it was a good one, but rather unfortunate, in another sense,

because it was somewhat rare in its occurrence in my neighbourhood. This was a "parasol mushroom" (*Agaricus procerus*). I could never remember to have seen such a thing before; indeed, I could not conceive it possible that I should, within a few days, go by appointment with my host to a small "spinney" half a mile away, and return with two specimens in my hands. This mushroom has such a distinct personality, its appearance becomes so fixed in the mind, without a rival to compete or be confounded with it, and its esculent quality is of such a high order that it would be impossible to name a better species for a novice to commence with. There is another reason why this is a most favourable species with which to commence fungus eating; it has a similar flavour to the mushroom, but not so strong. Some other kinds which could be named hardly suggest a mushroomy flavour, and, as far as I can gather, from my own experience, and that of others, the novice, making his first departure from the beaten track, will always compare the new esculent with the old one, and bring it into rivalry with the mushroom. Afterwards, when experience teaches that there are excellent fungi, with flavour peculiar to themselves, and like nothing else, they will habitually cease to institute comparisons, but at the outset it seems inevitable that he should do so. Most of my fungus-eating friends are of opinion that if all edible fungi were arranged in three classes, representing the excellent, good, and moderate, that the parasol mushroom would, with the true mushroom, and some score of others, occupy the first class. Indeed, I know of one, certainly a competent judge, who ranks it superior to the mushroom, if not at the head of its class. It would not be possible to find amongst those who favour mushroom food an individual who has not a very high opinion of it as a breakfast delicacy, although stronger flavoured species may be preferred as a condiment.

There is another mushroom (*Agaricus rachodes*) so nearly like the parasol that it is sometimes almost impossible to distinguish them. Berkeley himself says that "intermediate forms occur, which it is difficult to refer to either species." All this serves but to strengthen my conviction that there is really no specific difference, and yet for a long time an opinion was current amongst fungus eaters that the *rachodes* form was unwholesome. One writer says "it is not so good for food as *procerus*, if really wholesome;" and others have distinctly uttered cautions against it as unfit to be eaten. Another illustration of "give a dog a bad name, etc., for there is really no appreciable difference between them as esculents, and Mrs. Hussey was of the same opinion when she wrote: "If *procerus* is the king of edible funguses, *rachodes* is an excellent viceroy." Anyone who devotes attention to edible fungi will, in course of time, come round to the conviction that a great deal of romance has come to be associated with suspected species; for some slight reason or other somebody is led to doubt a certain species; then someone else, without further evidence, expresses a grave suspicion; this feeling intensifies, and a new author, with

some assurance, declares the suspected one to be absolutely unwholesome, and another "bogie" is set up, to maintain its position until some other more practical person, who does not take his cue from tradition, puts the suspicion to the test, and discovers it to be groundless. There could not well be a more ridiculous assumption than that of the unwholesome character of *rachodes*, which "chaste as ice, could not escape calumny." I am convinced that when the number of unwholesome fungi is reduced to its lowest denominator, it will not be, by any means, an imposing figure. During the past forty years a great deal has been done to clear away the insensate prejudice against "toadstools," but much still remains to be accomplished, for a bad reputation will cling to persons and things for a long time, even when the grounds for the accusation have been demonstrated "not proven." Both these forms of mushrooms are included by botanists in the sub-genus *Lepiota*, of which there are 36 British species, and I do not believe that a single one is unwholesome.

My mentor always impressed upon me, as I have endeavoured to impress upon others, the desirability of cultivating the habit of making coloured sketches of all the edible fungi, as a guide for future reference. The period of their appearance is so short, and there is no mode of drying and preserving them that is at all satisfactory, so that the only method of maintaining a record, and keeping up the continuity from season to season, is by means of water-colour sketches. The objection always urged against carrying out this plan is the declared want of hand power, the inability to make good drawings. Admitting this to be true, it is not, therefore, prohibitory, since anyone may acquire confidence, and ultimately proficiency, by adopting the plan which I adopted myself when I first commenced the study. Take a perfect specimen of the fungus, and cut it with a sharp, long-bladed knife through the middle of the cap and stem, longitudinally, to the base. This will give two equal halves of the fungus. Lay one of the halves, flat cut surface downwards, upon a sheet of white paper, and with a sharp-pointed hard pencil trace the outline upon the paper with the right hand, whilst the left keeps the half fungus in its position, so that it does not slip. When you have traced it all round, keeping the point of the pencil close to the edge of the fungus, the latter may be removed, and an outline will be left on the paper of the exact size and proportions of the original. A few details will then require to be added by hand, such as the ring round the stem (if it has one), and the line from left to right edge of the cap, indicating the lower edge of the cap. After a little practice such an outline may be made with great facility. Then follows the process of colouring, taking care to *match* the colours as nearly as possible, and not have them too bright. Shading is an after consideration, and may be resorted to when the power of drawing is more developed. All scales or marks on cap or stem should be indicated. Side by side with this sketch another should

be made in like manner, with either of the sections. This would represent the cut surface, or section through the centre of the fungus. In this case, also, some details will have to be added by hand. If the stem is hollow, that hollow must be drawn, so again a curved line from the stem to the edge of the cap, showing where the gills join the flesh, and consequently the width of the gills, especial attention being given to the manner in which the gills are attached to, or free from, the stem. The colour of the gills, and also of the flesh, can be added. This method will give two representations, one of the external appearance of the mushroom when growing, the other of a longitudinal section through the centre. All that remains to be done will be to add the name, the place where found, and the date. Other particulars which are not represented in the drawing would be added in writing, viz.: If growing on the ground, or on wood; if dry, or viscid; if with any odour, or none; if pleasant to the taste, or tasteless; and the colour of the spores, bearing in mind as of the utmost importance whether the stem is solid or hollow, and how the gills approach the stem. By following these instructions a person wholly unpractised in drawing may in a little time make excellent, though perhaps formal, sketches, and ultimately acquire sufficient confidence and power over the hand to execute freehand drawings without the tracing, although the tracing will always probably be acceptable for obtaining the section. No one need make the excuse that they are unable to execute drawings of *Agaricus* when this purely mechanical method is capable of being adopted, and if any artistic feeling is present in the operator it will soon be manifest in the sketches, which will cease to become mechanical.

M. C. C.

### OMITTED DIAGNOSES.

We fail to find the following in Saccardo's *Sylloge*.

**Peziza obvelata** (*De Lacr.*). *Rabenhorst, Fungi Europaei*, No. 432.

Ascomatibus sub epidermide nidulantibus, inter nervos foliorum seriatis, approximatis, rarissime confluentibus, ceraceo-mollibus, minutissimis, ore subconstrictis, parum apertis, primo rubellis, dein fuscenscentibus, disco concolore thecas octosporas 0·04 m.m. longas, 0·005 m.m. latas foente; sporis ovatis, obtusis, biocellatis, 0·008 m.m. longis, 0·002 m.m. latis. Hypophylla, sub-epidermoidea, ad Caricem hirtam Sti Romani ad Vigennam in territorio pictav. legebat de Lacroix, pater.

**Sphæria (subtectæ) Juniperi** (*Duby*). *Klot. Herb. Myc.*, No. 1833.

Sparsa aut gregaria rarius conferta epidermide fissa primo tecta dein in omnino expulsa nuda receptaculis atrobrunneis globosis opacis superficialibus, ostiolo minutissimo, thecis grossis clavatis

sessilibus sporas 8 ovatas pellucidas simplices aut rarius 1-septatas globulis minutissimis 4-5 farctas foventibus, paraphysibus 0. In monte Salevâ prope Genevam ad Juniperum emortuum cajus foliorum fere omnium paginam superiorem raro inferiorem infarciebat.

**Sphæria fusispora** (*Duby*). *Klot. Herb. Myc.*, No. 1832.

Gregaria aut elongato-seriata demum confluens primo tecto demum epidermide disrupta emergens, receptaculis nigris opacis globoso-depressis et etiam collapsis nunc solitariis nunc in series digestis et tunc difformibus, ostiolo nullo, paraphysibus nullis, thecis clavæformibus, sporas 8 fusiformes utrinque attenuatas virescentes 1-septatas 2-serialles foventibus. Ad caules emortuos Clematidis. Affinis S. Dulcamaræ a qua caracteribus laudatis differt et etiam S. Panacis Auct. non Fries (quæ *Diplodia*).

Scarcely like *Melogramma vagans*, to which it has been referred.

**Sphæria (Obturata) Rhododendri** (*Ces.*). *Klot. Herb. Myc.*, No. 1836.

Forsan erit qui ad *Sph. protusam* (Fr.) vel *obturatam* (Ejusd.)ducere velit. Sed donec non innoverit exacte fructificatio singularum Sphæriarum simplicium in plurimis speciebus determinatio æquivoca. In nostra, cujus specimina eheu! nisi pro maxima parte vetusta et diffracta legere contigit, ascos cito evanescere puto, sporidia ovoideo-oblonga hyalina simplicia linquentes. Perithecia perfecta sub-globosa ostiolum minutum quidem sed distinctum papillæforme præbent.

**Helotium pezizoideum**, *Cke & Phil.*

Scattered, sessile, cupulate becoming plane, somewhat repand; hymenium orange yellow, externally white or pallid; ascii cylindraceo-clavate ( $70 \times 7 \mu$ ); sporidia 8, fusiform or oblongo-fusiform, straight or slightly curved,  $7-12 \times 2 \mu$ , paraphyses slenderly filiform.

On dead wood, amongst mosses. Waitaki, New Zealand.

**Helotium scutellatum**, *Kalch. & Cooke*.

Scattered, sessile or subsessile, plane, fleshy, umbilicate, margin obtuse; exterior slightly furfuraceous, hymenium the same colour; ascii cylindraceo-clavate ( $101 \times 11 \mu$ ); sporidia 8, oblongo-elliptic, tinged with brown, pseudo-septate,  $16-19 \times 5 \mu$ , paraphyses filiform.

On dead coriaceous leaves. Cape of Good Hope. (*MacOwan.*)

Cups nearly a line broad, resembling in colour the leaf on which they grow.

**Helotium Venezuelianum** (*Klot.*), *Phil.*

Gregarious, cupulate, becoming plane or repand, umbilicate, glabrous, 1 line broad; stem flexuous, as long as the breadth of the cup; yellowish tan colour throughout; ascii clavate ( $60 \times 7 \mu$ ); sporidia 8, oblong or oblongo-fusiform,  $8-10 \times 2-3 \mu$ . Paraphyses slenderly filiform. *Peziza Venezueliana*, Klotzsch in Kew Herbarium.

On decorticated wood. Venezuela.

**Phialea furfuripes** (*Berk. & Curt.*), *Phil.*

Cæspitose or solitary, stipitate, cupulate, brown, glabrous, except the stem, which is clothed with short, simple, cæspitose hairs; asci cylindrical, tapering near the base ( $80 \times 8 \mu$ ); sporidia 8, sphærico-elliptic,  $5-6 \times 4 \mu$ ; paraphyses slenderly filiform.

On rotten wood. Venezuela. (*Herb. Berk.*)

Cups  $\frac{3}{4}$  of a line broad; total height, 1 line.

**Lachnella Morthieri**, *Cke.*

Scattered, stipitate; cups at first urceolate, then cupulate, pale yellow, clothed with short, septate, colourless hairs, which have a knob at the summit; asci clavate ( $25-30 \times 3 \mu$ ); sporidia 8, fusiform,  $5 \times 1 \mu$ , paraphyses not seen.

On dead stems of *Senecio Fuchsii*. Switzerland. (*Morthier in Herb. Kew.*)

Cups  $30 \mu$  broad, stem about  $15 \mu$  long.

**Lachnella asema**, *Phil.*

Scattered, minute, sessile, at first globose, then expanded, patelliform, white, or dirty-white, clothed with short, colourless, obtuse, septate hairs (scarcely visible under a lens); asci broadly clavate, pointed or obtuse ( $40 \times 7 \mu$ ); sporidia 8, fusiform or clavate,  $10 \times 3 \mu$ , paraphyses slenderly filiform.

On dead leaves of a *Carex*. Berrington, Salop, Britain.

The cups are about  $30 \mu$  broad.

**Lachnella brachytricha**, *Cke. & Phil.*

Scattered, stipitate; cups at first nearly closed, then expanded, cupulate, pale brown, clothed with very short hairs, which with the asci are often deformed by irregular swellings; stem enlarging upwards into the cup, usually curved; asci cylindrical or clavate; sporidia 8, cylindraco-fusiform,  $10-13 \times 2 \mu$ , paraphyses slenderly filiform.

On decorticated twigs. (*Herb. Kew.*)

Cups  $\frac{1}{4}$  to  $\frac{1}{2}$  a line broad, stems equalling in length the width of cups. The ventricose swellings on asci and hairs are a peculiar character.

**Lachnella Hispanica**, *Cke. & Phil.*

Scattered, stipitate; cupulate, white, clothed with long flexuous, colourless hairs, often with angular heads of oxalate of lime; hymenium pale yellow; asci cylindraco-clavate; sporidia 8, narrowly fusiform,  $10-13 \times 2-2 \cdot 5 \mu$ , paraphyses acerose, nearly as broad as, and longer than, the asci.

On dead stems of *Rumex suffruticosus*. Pico de Cancellas, Spain.

This much resembles *L. patula* (Pers.), but has rather larger sporidia, and the paraphyses are unusually large.

**Lachnella Nilgherrensis**, *Cke.*

Scattered, minute, sessile or subsessile, patelliform, externally white, clothed with slender, short, septate, colourless hairs; hymenium whitish-yellow; asci linear-lanceolate,  $70-80 \times 6 \mu$ ;

sporidia 8, linear, acute at the ends, 3-5 pseudo-septate, straight or slightly curved ( $26-35 \times 3 \mu$ ) ; paraphyses slenderly filiform.

On herbaceous stems. India. (Herb. Berk.)

Cups  $\frac{1}{4}$  of a line wide.

**Lachnella Emerici, Berk. & Phil.**

Scattered, stipitate, or turbinato-stipitate, brown, or rufous, cupulate (1 m.m. diam.), clothed with longish, flexuous, brown hairs, often with globose heads, asperate ; asci cylindraceo-clavate ( $60 \times 4 \mu$ ) ; sporidia 8, linear-lanceolate, pseudo 1-septate, straight,  $18-25 \times 2 \mu$  ; paraphyses acerose, slender, exceeding the asci.

On twigs. Neilgherries, India. (Herb. Berk.)

**Bulgaria chalybea, (Berk. in Herb.), Cke. & Mass.**

Cæspitosa, sub-stipitata, demum aperta, turbinata dein obconica, extus rugulosa, umbrina ( $2\frac{1}{2}-5$  c.m. diam.) subfurfuracea, disco concavo, chalybeo, margine acuto, ascis clavatis, tetrasporis, sporidiis monostichis ellipsoideis, fuscis, inaequilateralibus,  $25-27 \times 10 \mu$ , paraphysibus linearibus, hyalinis. *Bulgaria inquinans*, var. *chalybea*. Berk., Indian Fungi.

On wood. Darjeeling, India.

**Bulgaria microspora, Berk.**

Crowded or scattered; sessile, at first sub-turbinate, then expanded ; hymenium plane or concave, umbilicate, wrinkled, shining, purplish-brown, black when dry ; flesh gelatinous, wrinkled ; asci cylindraceo-clavate ; sporidia elliptic, narrowed at ends, brown, uniseptate,  $6 \times 3 \mu$  ; paraphyses slenderly filiform.

Venezuela. (Herb. Berk.)

**Ombrophila aurata, (Berk. & Rav.), Phil. Peziza aurata, Berk. & Rav. in Ravenel's Exs. Fasc. III., No. 37.**

In clusters or single, at first closed, then concave, at length expanded, convex, with undulate margin, half an inch wide ; young plants greenish yellow without, with the disc dark green ; in age becoming fuscous, underside venose ; asci clavate ; sporidia 6 or 8, fusiform, hyaline,  $5 \times 2$  ; paraphyses scarce.

On dead wood of *Acer*. South Carolina.

The thin flexuous cups (1 to 3 lines broad), the short tapering stem, and the yellowish green colour are marked characters. The asci are slender in the lowest third of their length,  $30 \times 4 \mu$ .

**Ryparobius tenacellus, Phil.**

Scattered, minute ; at first cylindrical, then hemispherical, immarginate, white, glabrous, with a tough membranaceous epidermis ; hymenium plane, or slightly convex ; asci broadly clavate ; sporidia 36, elliptic, hyaline,  $12 \times 8 \mu$  ; paraphyses stout, enlarged at the apices, at first filled with large guttæ, then pseudo-septate.

On rabbits' dung. The Wrekin, Shropshire, Britain.

The asci are  $70-80 \times 27-30 \mu$  ; the cells of the epidermis are  $10 \mu$  in diameter, and are strongly adherent, as indeed is the whole of the pseudo-parenchyma ; the paraphyses at the apices are  $6 \mu$  thick. This species approaches *Ryparobius albidus*, Boud, but has larger asci and sporidia, and is quite white.

***Patellaria lata* (Berk.), Phil.**

Scattered, plain, or slightly concave, hymenium dark brown, the distinct margin paler; asci clavato-lanceolate; sporidia 8, fusiform, with 4-5 guttæ, tinged brown,  $25-30 \times 5 \mu$ ; paraphyses abundant, slenderly filamentous.

On twigs of some tree. (*Herb. Berk.*) Java.

Cup seated on the bark,  $\frac{1}{2}$  a line broad, brown within.

***Patellaria Carteri* (Berk.), Phil.**

Crowded, difformed, patellate, hymenium black; margin involute, brown-black, as is also the flesh; asci cylindrical, narrower at the base; sporidia 8, elliptic, brown,  $10 \times 5 \mu$ ; paraphyses filiform, with enlarged, adherent, forked summits.

On dead decorticated wood. Bombay. (*H. J. Carter.*)

This is a large species, from  $\frac{1}{2}$  to 2 lines broad.

***Phacidium mirabile*, Cooke.**

Scattered; sub-superficial, at first lentiform, closed, then rupturing irregularly, exposing the dark brown hymenium; excipulum sub-membranaceous; asci clavate, somewhat acute at the summit; sporidia 8, linear, acute at the ends, straight or curved, hyaline, furnished with 2-8 guttæ,  $35-50 \times 3-4 \mu$ ; paraphyses slenderly filiform, slightly enlarged at the apices.

On disused herbarium paper in "Cryptogames du Lyonnais." (*J. J. Therry*, No. 6,302.)

The receptacles are a  $\frac{1}{4}$  to  $\frac{3}{4}$  of a line broad; the asci are  $95 \mu$  long by  $10 \mu$  broad. The species is somewhat anomalous.

***Phacidium luridum* (Berk. & Curt.), Phil.**

Congregated, often contiguous, at first covered by the epidermis, then erumpent, orbicular, black, rugose, at length opening irregularly at the top; hymenium concave, cinereous; asci clavate ( $90 \times 5 \mu$ ); sporidia 8, oblong-ovate, simple,  $10-14 \times 4 \mu$ ; paraphyses filiform, slender. *Patellaria lurida*, B. & C. Berkeley's Herbarium.

On twigs. Pennsylvania. (*Dr. Michener.*)

It has a distinct peridium which is not concrete with the epidermis, which it throws up as a serrated border.

***Phoma coryphæ*, Cke. & Mass.**

Peritheciis laxe gregariis erumpentibus, conicis, basi insculptis, atris, papillatis ( $\frac{1}{3}-\frac{1}{4}$  m.m.). Sporulis arcte ellipticis, utrinque rotundatis, hyalinis,  $12 \times 3 \mu$ .

On palm petioles. Ceylon, 649.

The following also we fail to detect in Saccardo's "Sylloge":—

***Peziza echinulata*, Auerswald, *Hedwigia*, 1868, p. 136.**

***Propolis phacidiooides*, Fr. *Syst. Myc.* II., 198.**

***Stictis dryophila*, Cke. & Ell., *Grevillea* v., p. 33, t. 75, f. 6.**

***Stictis coccinea*, Fries Elen., p. 24.**

***Phacidium tetrasporum*, Phil. *Brit. Disco.*, p. 388.**

***Peziza dematiicola*, B. & Br., *Ann. Nat. Hist.*, No. 1070. *Phil. Brit. Disc.*, p. 267.**

CORDYCEPS HAWKESII, *Gray.*

By M. C. COOKE.

In a memoir entitled "Notices of Insects that are known to form the bases of Fungoid Parasites," by Mr. Gray, of the British Museum, privately printed and distributed in 1858, there are two figures, with descriptions, of a species of *Cordyceps* not yet recognized in systematic books. That it has distinctive features there can be no doubt, and Mr. Gray, considering it to be different from the other Australasian species, applied to it the above name. This entomophyte is in many particulars readily to be distinguished from *Cordyceps Gunnii*, and like that it is found in Tasmania.

The entire length of the club, and its host, is from five to nine inches, of which the fertile club does not occupy an inch. It is cylindrical, slightly narrowed and truncate at the apex, dotted with the immersed perithecia. The stem is irregular, flexuous, from two to four inches long, but slender, and for a great part of its length clad with a fulvous woolly coating. It is not thicker than a straw in some specimens, and altogether of a much more slender habit than *Cordyceps Gunnii*. Two clubs arise together from the same spot in some instances, or from different parts of the same caterpillar, and occasionally there are three or four clubs on one individual. The internal structure is undoubtedly the same as in *Cordyceps*, but the dimensions of the sporidia are not named. The figures given are on Plate V., figures 10 to 12.

The specimens were obtained by Mr. Hawkes, in Tasmania, in the month of April, and after him the species has been named. It can scarcely be confounded with *Cordyceps Gunnii*, for the club is not nearly so thick or dark, and has a different form. The stem, besides being more slender, is irregular, contorted, and nodulose, besides being woolly. From *Cordyceps Robertsii*, again, it differs in the broader and shorter head, as well as in the character of the stem. A comparison of the figures of the two will show that there is no difficulty in distinguishing them. To the entomologist, an important difference from both the other species will be recognized in the clubs springing from any part of the body of the insect.

This species has not been noticed in recent mycological works, partly on account of the memoir in which it was recorded having been privately printed, and hence comparatively unknown, and partly from the absence of any definite technical description. Although *Cordyceps Gunnii* appears now and then in different localities in Australia, the present species has not as yet been recognized outside Tasmania.

We must, however, advert to the account which Mr. Gray has given of this entomophyte from his own point of view, and his opinion of the host upon which it establishes itself. "It bears,"

he says, "a great similarity to those of New Zealand, and from its manner of growth one is induced to suppose that the external plant also forces its way at once through the sandy soil, wherever the insect may happen to be situated in its burrow when overtaken by the effect of the internal development of the thallus (mycelium). Judging from the various lengths of the plant, this takes place at different depths from the surface ; and it is sometimes evident that the two ends of the caterpillar, when so affected by parasites, are buried at uneven depths, thus the plant emerging at the anal portion in one example was apparently buried for three and a half inches, while that originating at the anterior part was not buried for more than two and a half inches, showing a difference of one inch between the two ends, and at the same time proving the justice of the opinion previously expressed in reference to the New Zealand entomophytes, that the plant takes its rise from the caterpillar while in a horizontal, or nearly horizontal, position. The specimens in general show that the stem above the surface (*i.e.*, between the earth and the fructification) did not exceed a half or a quarter of an inch in length ; and the buried portion of the stem, it may be remarked, especially that nearest the surface, is covered with a quantity of fulvous woolly matter, which matter sometimes extends itself to the body of the caterpillar.

" The most curious feature, however, of this parasite is that it grows from various portions of the body of the caterpillar, and in this respect offers a great difference from that of the New Zealand kind. Various examples of this distinction are among the specimens sent by Mr. Hawkes to the British Museum. One exhibits two fungoid tubercles forcing their way through the head, two fungi growing from the same base on the side of the abdominal segments, and a short fungus proceeding from the anal segment posteriorly. Another specimen was apparently in the act of progressing head upwards, but which had been checked in its progress, and the fungus has thus grown from both its ends ; yet the two plants had appeared above the surface of the earth near to each other. That from the head is about five and a quarter inches, while the one from the anal portion is eight and a quarter inches in length ; the latter, however, proceeded from a short stem which had first, apparently, grown downwards before the plant turned towards the surface. The stem is irregular in its length, and in places is very woolly, especially the part near the surface, and is more so on the one from the head. Some of these caterpillars bear a fungus composed of a short stem at the base, which has evidently been broken, and has then given origin to several branches ; these branches are more slender than where the plant consists only of a single stem throughout. The discovery of this species of parasite has dispelled the idea which had been entertained up to the present time that *Cordyceps Gunnii* was the only one to be found in Tasmania. A similar one, or perhaps the same species, is also found in Victoria.

" The caterpillar may be that of a species of *Pielus*, or of some

closely allied genus; but the perfect insect is unknown at present. The fungus was found in a sandy district, but the exact locality was not mentioned, and from its appearance it is not improbable that the mode of life and food of the caterpillar are extremely like those of the New Zealand entomophytes. It is, however, of a peculiar deep reddish purple colour, about three or four inches in length, partaking of the same form as the others; but the shields on the thorax differ. The prothorax is almost entirely covered; the mesothorax has a narrow shield, forming a crescent towards the anterior margin; the metathorax is only furnished with a very narrow crescent-shaped shield and a subquadrate spot on the side."

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#### "FUNGI EXSICCATI" EXCESSES.

"Coming events cast their shadows before," and we fancy that we recognize the shadow of the coming collapse of general "Fungi Exsiccati," by internal evidence supplied by the collections themselves. For the old series by Desmazieres, Mougeot, Klotsch, and continuation, and Fuckel, there was a want at the time, which they supplied, and gave satisfaction. But nowadays the case is different, the number increases, and the quality deteriorates, so that at length there is sure to be an outcry of "no more exsiccati."

When the specimens issued are insufficient in quantity, and deficient in quality; when they are preserved and distributed in such an imperfect condition that additional labour has to be expended upon them to render them of permanent service; when the collections, one after the other, include the commonest species, over and over again; when the species, if of interest, is repeated, from the self-same locality, in three or four current sets; when the series are extended to such an inordinate length as to exceed the resources of the ordinary purchaser, then the end must be near. For limited series there may still be a market; for such as "Rehm's Ascomycetes" or "Phillips' Discomycetes," or "Plowright's Sphaeriacei" there was good and sufficient reason; but for an unlimited range over 40,000 species there is no excuse. We are led to these remarks by noting a few facts which have come within our own experience. Let us take a selection from these examples, and upon them we will leave a disinterested and unprejudiced mycologist to pronounce judgment.

**Puccinia graminis**, in one published series, is represented by Nos. 266, 267, 268, 319, 366, 427; in another series, by the same collector, are Nos. 116, 640, 2,019, 2,635, 2,638, and 3,022. In another collection, published simultaneously by another hand, the same species appears under Nos. 47, 526, 1,514, and 2,919.

**Pleospora herbarum**. In one series we find it under the following numbers: 179, 536, 537, 845, 1,160, 1,357, 1,921, 1,922,

1,923, 2,540, and 2,544 ; and in another series, 80, 178, 189, 686, 687, 688, 792, 895, 1,188, 1,283, 1,285, 1,599, 2,197, 2,747, 3,038, 3,436, 3,437, and 3,771. Other species nearly equal to these might be quoted, but supposing any individual purchasing all these series, would he not feel most reasonably annoyed at having to pay for sixteen specimens of *Puccinia graminis* and twenty-nine examples of *Pleospora herbarum* ?

There is another aspect in which deterioration of value is manifest ; we will suppose a new species, in some well-known genus, is issued in North America, and, of course, as such is welcomed, but it has become the practice now to recognize the same species from the same locality issued in two or three other exsiccata, and hence every such species has, as a penalty, to be paid for three or four times. Take :—

**Entyloma menispermi**, *Farl.*

Ellis, 1490. Winter, 3002. Roumeguere, 4032.

**Gloeosporium stenosporum**, *E. & K.*

Ellis, 1631. Winter, 3689. Roumeguere, 3877.

**Parodiella perisporioides**, *B. & C.*

Ellis, 685, 1560. Winter, 3251. Roumeguere, 4051.

**Chaetomium olivaceum**, *C. & E.*

Ellis, 56. Thumen, 1942. Roumeguere, 4930.

**Venturia orbicula**, *Schwein.*

Ellis, 700, 1687. Winter, 3143. Thumen, 855.

**Sporidesmium rude**, *Ellis.*

Ellis, 763. Thumen, 475. Roumeguere, 4591.

**Massaria vomitaria**, *B. & C.*

Ellis, 97. Thumen, 270. Winter, 3667. Rehm., 438.

**Ophiobolus fulgidus**, *C. & P.*

Ellis, 583. Thumen, 1742. Roumeguere, 4856.

**Sphaerella Magnoliae**, *Ellis.*

Ellis, 800. Winter, 2755. Roumeguere, 2453.

**Sphaerella convexula**, *Schw.*

Ellis, 1674. Winter, 3257. Ravenel, 755.

**Cercospora copallina**, *Cooke.*

Ellis, 1505. Winter, 3682. Ravenel, 586.

**Cercospora granuliformis**, *E. & H.*

Ellis, 1753. Winter, 3683. Roumeguere, 3595, 4004.

**Cercospora Demetriana**, *Wint.*

Ellis, 1744. Winter, 3079. Roumeguere, 4488.

**Cercospora personata**, *B. & C.*

Ellis, 2480. Thumen, 1964. Roumeguere, 4689. Ravenel, 771.

**Cercospora diantheræ**, *E. & K.*

Ellis, 1750. Kellerman, 33. Roumeguere, 5190.

**Microsphæra extensa**, *C. & P.*

Ellis, 429. Thumen, 756. Winter, 3043. Ravenel, 625.

**Microsphaera van Bruntiana, Ger.**

Ellis, 1824. Winter, 3247. Rehm., 849.

**Microsphaera Ravenelii, B. & C.**

Ellis, 660. Thumen, 558. Rehm., 446. Ravenel, 87.

**Uncinula macrospora, Peck.**

Ellis, 426. Winter, 3244. Thumen, 2053.

Commercially this kind of thing is a failure. It is a depreciation of value, by increase of supply, and, in the end, must result in injury to all parties concerned. Already we hear warning notes of dissatisfaction, and these will assuredly ripen into measures of retaliation, which may take the form of reduction of at least two-thirds the number of “ exsiccati ” subscribed for. In these days, when there is a constant tendency to specialization, the only alternative left to those who supply sets of specimens will be to limit the length of the series, by restricting the issue to some definite section, such as Pyrenomycetes, Discomycetes, Gasteromycetes, Uredines, Hyphomycetes, or Myxomycetes. The bulk of Hymenomycetes have never given entire satisfaction, and hence it would be a doubtful section to rely upon. If this division of labour, reduction of bulk, and limitation of expenditure should be resorted to it may command the market, but the last days of general collections are undoubtedly at hand.

M. C. C.

## MEMORABILIA.

**VALSARIA PARMULARIA** (*Berk.*), *Sacc. Syll.* No. 2814.—Specimen so called in Roumeguere's *Fungi Galliei*, No. 4338, is not that species, which has sporidia  $35 \mu$  long, whereas in this they are only  $15 \times 9 \mu$ , probably a form of *Valsaria rubricosa*, Fr.

**EPICHLÖE HYPOXYLON**, *Peck.*, 27th Report, p. 108.—According to the specimen in Ellis and Everhardt's North American Fungi, this is identical with *Hypocrella atramentosa*, *Berk.* & *Curt.*, in Saccardo's *Sylloge*, No. 5066.

**AGARICUS (GALERA) MUCIDOLENS**, *Berk. Lond. Journ.*, 1845, p. 301, *Saccardo Sylloge*, No. 3563.—This species was transferred in Berkeley's Herbarium to *Pluteus*, No. 806, and evidently belongs to *Hyporrhodii*. Spores  $8 \times 5\text{--}6 \mu$ .

**ILLUSTRATIONS OF BRITISH FUNGI.**—Within a few days of the appearance of this journal, the last two parts of the “ Illustrations ” will be in the hands of subscribers, bringing the total number of plates to 1,198. The title page and index will also be found in the last part for the eighth volume. It is a source of unalloyed pleasure that this consummation has been attained, after the con-

tinuous labour of ten years. It is not a consolatory reflection that, partly from the defection and partly from the death of subscribers, the income has for the past two years fallen short of the expenditure. However, this is not a solitary instance of unrequited labour, and, if the author finds himself out of pocket at the close of ten years' working for nothing, he can only blame himself. Pressing invitations have been received urging the publication of a companion volume, which should include the whole of the *Polyporei*. No doubt this would be very convenient, but, at present, the reflections upon the past are not calculated to raise an enthusiasm for a similar future. It may be generous to work without hope or prospect of remuneration, but it is a luxury of which one becomes weary at last.

**FUNGI OF AUSTRALIA.**—Arrangements are in progress, and nearly completed, for the production, in one volume, octavo, of a text book for the Fungi of Australia, containing descriptions, in English, of all the genera and species, with plates, some plain and some coloured, illustrating all the principal genera and subgenera, as much as possible by means of Australian species. The separate governments have consented to the production of the work under their patronage and with their support. The bulk of the work has been prepared, and the printing will commence as soon as the preliminaries are finally determined. A few copies will be retained for sale in Europe, but the principal portion of the issue will be sent to the Colonies forthwith. It is confidently expected to be completed within twelve months.

**EDIBLE BRITISH FUNGI.**—The editor having, during the past winter, prepared a small popular volume on this subject, illustrated by coloured plates, it is hoped that arrangements will soon be completed for its publication, at a moderate price, in ample time for use in the coming season. The plates will contain about forty-four species, on twelve plates, and the letterpress, amongst other matters, will include full directions for cooking and serving the various dishes. In order to give full space for the esculent species, the poisonous kinds will be purposely excluded, as the author considers the usual course of including poisonous with edible fungi to be an objectionable one.

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## TWO AUSTRALIAN FUNGI.

By M. C. COOKE.

We have received, through the kindness of Baron F. von Mueller, drawing and specimen of an Australian species of *Amanita*, which, in many points, is sufficiently remarkable for special notice. It was found near Bacchus Marsh, Victoria, by

D. Best, and is quite distinct from anything heretofore described. In colour it resembles the ordinary yellow form of *Ag. phalloides*, but there all resemblance ceases. The pileus is convex and hemispherical, but exhibiting no tendency to become flattened, and covered to the very margin with large obtusely pyramidal warts, or scales, like the scales of a "stone pine." Not, as in most species, the remains of the volva, but large persistent scales, into each of which the flesh of the pileus enters, and the cuticle follows all the inequalities of the projections, which are in some cases a centimetre broad at the base, where they are hexagonal in outline and touching each other. The diameter of the pileus is from three to four inches, with an incurved margin. There is no evidence of viscosity, and no tenacity in the cuticle when moistened. From *Ag. ananæcps* it differs in having the scales continued to the extreme margin, in their larger size, greater solidity, and in not being superficial, but persistent. The external appearance is somewhat that of *Polyporus Ellisii* from the United States, or, indeed, from the character of the scales, almost any of the species of *Strobilomyces*, except in colour. The stem is short, about an inch thick, and rather attenuated upwards, four inches long or more, a little obtusely turbinate at the base, and the volva closely adnate and marginate, deeply sulcate with four or five deep furrows, directed downwards, around the slight bulb. The ring is superior and rather small, whilst the stem is solid and firm, a little paler than the pileus. The gills rather narrow and free, not much crowded, leaving a channel around the top of the stem. Spores quite different from *Ag. ananæcps*, the only species to which it approximates. It will be seen from the above description that this is really a peculiar species, which, in drying, becomes quite hard, without any of the flaccidity or premonition of decay common to *Amanita*. The following will be its diagnosis :—

***Agaricus (Amanita) strobilaceus*, Cooke.**

Pileus convex, hemispherical (3-4 in. diam.), pale lemon yellow, covered with large persistent, obtusely pyramidal warts, or scales, after the manner of a fir cone, down to the extreme margin, which is incurved. Stem short, stout, solid, slightly incrassated at the base (4 in.  $\times$  1 in. or more), ring superior. Volva closely adnate, circumscissile, marginate, longitudinally sulcate. Gills rather narrow, not crowded, free, leaving a channel round the stem. Spores small, hyaline,  $5 \times 2\frac{1}{2} \mu$ .

On the ground. Victoria.

We hope, by arrangement with the Government Department of Victoria, to give coloured figures of this and other Victorian Agaries, in subsequent numbers of this journal.

The other fungus worthy of notice is also remarkable in a different manner, as it belongs to quite a different order of fungi, the *Pyrenomycetes*. It is in reality a superficial *Sphæria*, with a remote resemblance to the old *Sphæria ovina*, but sulphur coloured,

covered with a mealy, pulverulent hairy coat, and hence now called *Lasiosphæria*. The most noteworthy circumstance lies in the character of the fructification, which is remarkably fine, consisting of long, spindle-shaped sporidia, with from 15 to 19 septa. At first the perithecia are so concealed by the mealy coating that it is difficult to determine what sort of a fungus it is, or whether it is a fungus at all. It occurred on bark near Macedon, Victoria, and was discovered by that energetic lady, to whom we have been indebted for many good things, Mrs. W. Martin (*néé* Flora Campbell).

***Lasiosphæria larvæspora*, Cke. & Mass.**

Perithecia superficial, loosely gregarious ( $\frac{1}{2}$ - $\frac{1}{3}$  m.m. diam.), globose, covered with a mealy floccose sulphur-coloured investment, with a naked pierced ostiolum. Ascii cylindrically clavate, octosporous. Sporidia elongated, fusiform, straight or flexuous ( $160 \times 10 \mu$ ), at first nucleate, then multiseptate (15-19), hyaline.

On bark. Macedon, Victoria. (No. 566.)

## MUSHROOMS AND TOADSTOOLS.

Having had occasion recently to obtain a census of edible and noxious fungi, it may prove acceptable to record some of the figures obtained in this investigation. It may be premised that Saccardo's "Sylloge," which professes to have brought together all the descriptions of species from all parts of the world, enumerates 4,600 species of *Agaricini*, and this is assumed to be the total number of gill-bearing fungi hitherto described. Out of this total the "Reprint of Handbook," just completed for this group of fungi, enumerates 1,400 British species, so that more than one-fourth of the entire total have been found in these islands. It was our object to obtain some guide to the proportions of edible and noxious fungi in this total, and, as a first step, we discovered that 134 may be relied upon as edible, but against these we have no positive evidence that more than 30 are poisonous. It is necessary to analyze the total 1,400 species a little before we draw inferences, and in pursuit of this we discovered that—

Species too minute to be of any service, as esculents ...	...	...	...	...	580
Species found only once or very rare...				...	130
Species too coriaceous, as <i>Lenzites</i> ...	...	...			10
					—
					720

By this means we discover that slightly over one-half of the total number of British species must be left out of account, so

that we have only to discover, or estimate, the number of poisonous or edible species in a total of 680, of which we know 134 to be good eating. The balance of 550 species is apparently a very considerable one for uncertainty, and it would be very satisfactory if it could be reduced.

To our minds the 125 species of *Cortinarius* might be set aside as not decidedly poisonous, but not common enough to be of any general interest. Then about 30 large species of the *Hyporrhodii* are not accounted for. We have such a lurking suspicion of this section, that we had rather believe them noxious than make any attempt to eat them. On the other hand there are 27 *Hygrophori*, and at least 50 *Leucospori*, which we could believe in so much as not to decline to test them; most probably fifty of these would be agreeable eating even if 27 were simply innoxious. After all it seems most probable that we have 200 species of *Agaricini* which could be eaten with impunity. No one cares to experiment at all freely with treacherous material, but having regard to affinities, to analogous odour and absence of acridity in the raw state, it seems highly probable that the number might, without risk, be increased to some 200 species of British edible fungi. Many that are not included in our definite list of 134 species have been tried by ourselves and found harmless, but we desire to try them again before recommending them to others. We shall be glad of any suggestions of species not already included in our list when it is published.

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#### SPORE DIFFUSION IN PHALLOIDEI.

An interesting discussion has been proceeding for some weeks in the pages of "Nature" on "Attractive Characters in Fungi." It is not our intention in this place to intervene in that discussion, but to follow a suggestion tending in another direction. It is to be noted that the old assumption is not dead, that the spores of fungi do not germinate direct, but must previously serve a probation in the stomach of some animal, where they undergo some change which induces fertility. There was a period, undoubtedly, when many persons held this belief, and some hold to it still, simply because it has been held, and not from any evidence. As far as we are aware there never has been any evidence for this belief, beyond a mere assumption, and *that* only in respect to the common mushroom. It was observed that horse droppings, packed together, yielded spawn, which, under favourable conditions, produced mushrooms. The inference was that the horse had devoured the mushrooms in order to give the spores a warm lodgment in its intestines, and ensure germination. Hence, that the spores so treated became fertile, assuming that otherwise they were

not fertile ; ultimate conclusion, that the spores of fungi must pass through the body of some animal or they will not germinate.

Undoubtedly this is all a romance, with no other basis than the above supposition, and devoid of any sustaining facts. On the contrary, Mr. Worthington Smith demonstrated that spores of *Coprinus* germinated readily on dung and its juices, although innocent of any intestinal journey. An error is a long time in dying out, and this one is most tenacious of life, although it has been contradicted over and over again.

It is nearly two years since that Mr. Wemyss Fulton communicated a paper to the "Annals of Botany" on "The Dispersion of the Spores of Fungi by the agency of Insects, with special reference to the Phalloidei." Perhaps no one really doubted that the foetid odour, prevalent in this order, was attractive to flies ; it was known pretty generally that the large flies congregated about the *Phallus*, and revelled in its dark green slime at the period of its maturity, but it had not been demonstrated by experiment that the voided spores were either fertile or sterile. It was shown, therefore, that the spores of *Phallus impudicus* having passed through the body of a fly, would germinate, and had not been injured in the transmission. "As to the action of the spores on the fly, there was no deleterious effect. They lived for about three weeks on this food and then died, and, as was to be expected, no subsequent change occurred in their bodies." As to the effect of the ingestion of the spores upon the spores themselves, it was found that they germinated and produced mycelium without apparently having suffered injury. No one is at liberty to assume that the spores had been rendered fertile by ingestion, and that it was essential to their germination that they should pass through the stomach of a fly. No such inference is drawn in the paper alluded to, and, as far as we see, no other suggestion than "insects are normally the disseminators of the spores of *Phallus impudicus*, and that this fact serves to explain, not only the peculiar liquefaction of the hymenium, but many other points in its structure, and furnishes, indeed, the clue to the curious and often bizarre forms of other Phalloids which have so often puzzled botanists to explain."

An allusion is made in this paper to the species of *Coprinus*, in which genus it is known that the gills are deliquescent, falling away in black, inky drops, fully charged with the spores. It is assumed that a foetid odour is prevalent in *Coprinus*, whereas such is not the case until decay is considerably advanced. The proportion of foetid species is not greater in *Coprinus* than in any other genus or sub-genus of gill-bearing fungi, and should not be mentioned in company with the *Phalloidei*. Neither could we ever discover that they were exceptionally subject to the visitation of insects. On this point, however, we should be glad to hear of the results of systematic observation. We note, however, the following : "In some cases, from the radial fissuring and the curling up of the pileus, combined with peculiarities of colouring, a curious

superficial resemblance to the flowers of some Compositæ may be recognized, the unchanged, often brownish centre, representing the disc, and the radiate marginal part the rays. This partial mimicry may possibly be accidental and without advantage, but it is worth noting that the great majority of those species which are markedly revolute, or what I may call flower-like, grow on dung where flies are abundant, while of those which possess neither of these characters well marked, the majority do not grow on dung as a rule." Is not this merely fanciful? Although the flies abound on the dung, are they to be seen sucking the black juice from the pileus, as in the *Phalloidei*, and if so, at what period of the day? since we have never been fortunate enough to catch them at it; so that we fail to appreciate the conclusion, that "considering all these facts in relation to the *Coprinini*, the assumption is certainly warranted that they exhibit adaptations for the purpose of having their spores transported by insects." On this point we have an open mind, but although we have watched, often and long, we cannot confirm insect visitation to the deliquescent gills of *Coprinus*.

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## NEW BRITISH FUNGI.

(Continued from p. 41.)

### **Hypocrea (Broomella) leptogicola, Cke. & Mass.**

Stroma orbicular, convex, pruinose, flesh-coloured, become hard when dry ( $\frac{1}{2}$ -1 m.m. diam.), parasitic on thallus of *Leptogium*, ostiola obsolete, ascii clavato-cylindrical. Sporidia fusiform, acute at the ends, 5-septate, hyaline ( $37-40 \times 6 \mu$ ).

On *Leptogium*, growing upon *Robinia*. Kew.

### **Stuartella Carlylei, Cke. & Mass.**

Perithecia gregarious, large, carbonaceous, globose, superficial ( $\frac{3}{4}$  m.m. diam.), black, tuberculate, as in *Bertia moriformis*, pierced at the apex, not papillate; ascii clavately cylindrical, sporidia lanceolate, five septate, not constricted, brown,  $40-50 \times 8-10 \mu$ .

On naked wood. Carlisle. (Dr. Carlyle.)

### **Mollisia dactyligluma, Cooke.**

Cups soft, fleshy, concave, then flattened,  $\frac{1}{4}-\frac{1}{2}$  m.m., white, cinereous, or livid, paler at margin, sessile, smooth. Ascii cylindrical, sporidia cylindrical, rounded at the ends, nearly straight, hyaline,  $10 \times 1\frac{1}{2} \mu$ .

On glumes of *Dactylis glomerata*. Lynn.

### **Lachnella stigmella, Cooke.**

Cups shortly stipitate, white, or pale flesh-colour, clad with thin flexuous hairs, one-tenth m.m. diam., disc of the same colour; ascii cylindrical. Sporidia  $8-10 \times 1 \mu$ , paraphyses fusiform.

On rushes. Norfolk.

## CRYPTOGAMIC LITERATURE.

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# Grevillea.

A QUARTERLY RECORD OF CRYPTOGAMIC BOTANY  
AND ITS LITERATURE.

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## AUSTRALIAN FUNGI.

By M. C. COOKE.

(Continued from p. 62.)

### **Agaricus (Leptonia) melanurus, Cke. & Mass.**

Pileus campanulate, subumbonate, then expanded, shining black, cracking radiately (2 c.m. broad). Stem cylindrical (5-6 c.m. long, 2 m.m. thick), swollen abruptly at the rooting base, greyish, with black striæ. Gills reaching the stem, lanceolate, pallid, then pinkish, margin blackish with a line of large dark cystidia, with one to three blunt teeth at the apex. Spores subglobose ( $7 \times 5 \mu$ ).

On the ground. Oakleigh, Victoria.

### **Agaricus (Pholiota) disruptus, Cke. & Mass.**

Pileus convex, fleshy, creamy white, at first smooth, then cracked deeply into large areolæ, especially about the fleshy disc (8-10 c.m. broad), margin incurved. Stem elongated, cylindrical, expanding into the pileus, sometimes slightly swollen at the base (10 c.m. long, 10-15 m.m. thick), same colour as the pileus, hollow, striate, cracking, and subsquamulose, with a strong cord-like mycelium. Ring narrow, pendulous. Gills adnate, rather ventricose, broad, not crowded, dull pinkish white, then umber. Spores elliptical, tawny brown,  $14 \times 9 \mu$ .

On the ground. Victoria. (Mrs. Martin, 613.)

Allied to *Ag. pudicus*.

### **Agaricus (Flammula) veluticeps, Cke. & Mass.**

Pileus convex, then flattened, depressed in the centre, densely and shortly velvety, bay-brown (3-4 c.m. broad), margin involute. Stem expanded upwards into the pileus, stuffed, rather short (3 c.m. long), smooth, of the same colour as the pileus (5 m.m. thick). Gills rather distant, attenuated behind, and deeply decurrent, orange brown, then umber. Spores orange brown, minutely apiculate at the base ( $12 \times 5 \mu$ ).

Amongst grass on the hillsides. Omeo, Victoria. (Baron F. v. Mueller, H.)

**Boletus (Subtomentosi) brunneus, Cke. & Mass.**

Pileus pulvinate, convex, subtomentose, at length cracking into innate scaly patches (10-12 c.m. broad), reddish brown. Stem short, thick, attenuated upwards (7 c.m. long, 5 c.m. thick at the base), colour of the pileus, striate with black, flesh whitish, blue when cut, at length brown. Tubes free, pores rather large, angular, greenish grey. Spores  $14-15 \times 4 \mu$ , olive.

On the ground. Victoria. (Mrs. Martin, 611.)

**Corticium penetrans, Cke. & Mass.**

White, effused, incrusting, thick, soft, closely adnate, immarginate; with a profuse penetrating floccose mycelium. Hymenium continuous, even, smooth, chalky. Spores pip-shaped,  $9 \times 7 \mu$ .

On rotten wood, etc. Sorrento, Victoria. (Mrs. Martin, No. 635.)

Resembling *C. portentosum*, but with different spores.

**Didymosphaeria Banksiae, Cke.**

Epiphyllous, spots orbicular, pallid, with a nebulous brown margin; perithecia few, central, erumpent by cracking the cuticle, black, subglobose, papillate. Asci clavate, sessile, octosporous; sporidia biseriate, uniseptate, the upper cell nearly globose, the lower cell rather narrower, brown,  $10 \times 5 \mu$ .

On living leaves of *Banksia*. Victoria. (Martin, 685.)

**Microthyrium amygdalinum, Cke. & Mass.**

Perithecia gregarious or scattered, on both surfaces, superficial, and soon falling away, lenticular, membranaceous, very dark brown, with a radiating cellular structure, pierced in the centre; asci clavate, sporidia without order, elliptical, attenuated towards each end, uniseptate, hyaline,  $14 \times 7 \mu$ .

On living leaves of *Eucalyptus amygdalina*. Spencer's Gulf. (Walt. Gill.)

Communicated by Baron F. v. Mueller.

**Conisporium pterospermum, Cke. & Mass.**

Pustules gregarious, small, erumpent, elliptical, or elongated, blackish, mycelium forming a kind of pulvinate stroma, from which arise short hyaline sporophores, conidia apical, subglobose or oblong in outline, becoming discoid when free, with a membranous margin, expanded into about six truncate projections, each of which is concave at the apex, spore body globose, continuous, olive-brown,  $12 \mu$ , including the membranous expansion in one plane  $25 \mu$ .

On *Lepidospermum*. Victoria. (Martin, 778.)

**Cercospora Kennedyæ, Cke. & Mass.**

Epiphyllous. Spots cinnamon brown, irregular and confluent. Tufts scattered, black, punctiform, resembling a *Venturia*, erumpent. Threads fasciculate, simple, flexuous, sometimes nodulose, septate, pale olive. Conidia cylindrical, slightly attenuated upwards, three septate, hyaline olive ( $40 \times 3 \mu$ ); as long, or rather shorter than the threads.

On leaves of *Kennedya prostrata*. Victoria. (Mrs. Martin, 603.)

**Cercospora epicoccoides, Cke. & Mass.**

Epiphyllous. Spots small or confluent, purple, tufts gregarious, sphæriform, rather compact, black, resembling an *Epicoccum*, threads very short, simple. Conidia profuse, fasciculate, cylindrical, slightly attenuated upwards, 3.5 septate ( $50 \times 5 \mu$ ), pale olive.

On *Eucalyptus* leaves. Victoria. (Mrs. Martin, 600.)

**Stilbum corallinum, Cke. & Mass.**

Cæspitose, flesh-coloured, stems attenuated upwards, branched, with short branches, mealy; capitulum hemispherical, or rather irregular, subglobose, orange-red. Conidia elliptical, continuous, hyaline ( $5 \times 2 \mu$ ).

On bark. Victoria. (Mrs. Martin, 607.)

**Aposphaeria leptospermi, Cke.**

Perithecia scattered, erumpent, then superficial, minute, black, papillate, white within. Sporules minute, oval, hyaline,  $3 \times 1 \mu$ .

On bark of *Leptospermum*. Victoria. (Mrs. Martin, 680.)

**Dothiorella amygdali, Cke. & Mass.**

Perithecia innate, botryose, transversely erumpent, black, opaque, not papillate, rather gelatinous when moist. Sporules elliptical, hyaline, granular within ( $22-25 \times 8-10 \mu$ ), on rather thick basidia of equal length.

On bark of peach and almond. Victoria. (Mrs. Martin, 672.).

**Septoria lepidospermi, Cke. & Mass.**

On both surfaces, spots greyish, then white, oblong, with a broad brown margin. Perithecia small, semi-immersed, black, seated on the spots. Sporules linear, flexuous, hyaline,  $30 \times 1 \mu$ .

On leaves of *Lepidosperma*. Victoria. (Mrs. Martin, 779.)

**Melophia phyllachoroidea, Cke.**

Perithecia scattered, on both surfaces, convex, flattened at the base, and scutate, black ( $\frac{1}{2}-1$  m.m. diam.), white within, even, smooth. Sporules thread-like, curved or flexuous, hyaline,  $25 \mu$  long.

On leaves of *Leptospermum lavigatum*. Victoria. (Martin, 701.)

**Leptostromella eucalypti, Cke. & Mass.**

Spots suborbicular, on both surfaces, red brown, then fuliginous; perithecia scattered over the spots, minute, subglobose, then elongated, black, dehiscing by an elongated fissure. Sporules thread-like, straight or flexuous,  $20 \mu$  long.

On fading leaves of *Eucalyptus*. Victoria. (Martin, 682, 714.)

Stylospores of *Ailographum*?

**Gloeosporium nigricans, Cke. & Mass.**

Without distinct spots, on both surfaces. Pustules densely aggregated, becoming black, convex, at length pierced; conidia oval, hyaline,  $12 \times 7 \mu$ .

On leaves of *Eucalyptus pauciflora*. Australian Alps. (C. Walter.)

Communicated by Baron F. v. Mueller.

**Gloeosporium citri, Cke. & Mass.**

Gregarious, erumpent, pale fuliginous. Pustules rather small, often confluent, cuticle splitting irregularly above; conidia obtusely fusiform, on short sporophores, at first nucleate or granular, hyaline,  $20 \times 5\text{--}6 \mu$ .

On branches of lemon. Victoria. (Mrs. Martin, 638.)

**Gloeosporium epicladii, Cke. & Mass.**

Pustules gregarious, in the centre of irregular spots, caused by the blackened cuticle, with a central pallid pore, through which the contents emerge in an orange subgelatinous mass. Conidia fusiform, obtuse, hyaline ( $22\text{--}25 \times 9\text{--}10 \mu$ ), with granular contents.

On *Cladium tetraquetrum*. Port Phillip. (C. French). Communicated by Baron F. v. Mueller.

**Eurotium lateritium, Mont.**

Sporidia  $6\text{--}7 \mu$  diam.

On leaves of *Peperomia*. Mount Bartle Frere. (Stephen Johnson.) Communicated by Baron F. v. Mueller.

**Entyloma eugeniarum, Cke. & Mass.**

Sori in irregular dark brown pustules, which are flattened, rounded or confluent and then angular ( $\frac{1}{2}$  m.m.), collected in large hypophyllous patches. Spores globose, oblong, or angular ( $10\text{--}20 \times 10\text{--}12 \mu$ ). Epispore very thick, even, pale brown.

On leaves of *Eugenia*. Brisbane, 891.

ADDITIONS TO DÆDALEA.

By M. C. COOKE.

The enumeration of *Dædalea* in Saccardo's "Sylloge" is deficient in a few species, mostly named by Berkeley, the descriptions of which we have not been able to discover, and hence they have been drawn up from the typical specimens. We should have thought it preferable to have followed the same course as adopted in *Trametes*, and have recognized a section for the few species which possess a scutate base. We have proposed no other alterations in the arrangement, although there are some two or three species included in *Lenzites*, which, in our opinion, should have found a place in *Dædalea*.

**Dædalea Eatoni, Berk. in Herb.**

Coriaceo-suberosa. Pileo flabelliformi vel dimidiato, confluente vel imbricato (5 c.m. diam.), velutino, azono, sub-lævi, fusco-umbrino; contextu lignicolori; hymenio pileo saturatiore, lamellis

radiantibus, tenuibus, transverse anastomosantibus, acutis; sinulis rectis, inæqualibus, numquam flexuosis.

On trunks. Cape of Good Hope.

**Dædalea subcongener, Berk.**

Suberosa. Pileo dimidiato, applanato, velutino, pallido, lignicolori, vel subfuscō (6-12 c.m. diam.), concentrice sulcato, intus pallido, hymenio concolori, lamellis confertis, latis ( $\frac{1}{2}$ -1 c.m.) sinulis confertissimis, flexuosis, angustissimis, dessepimentis tenuibus.

On trunks. Australia. Sierra Leone. Makua Country, Trop. Africa.

**Dædalea flabellum, Berk. in Herb.**

Rigido, coriaceo-suberoso. Pileo ampio, reniformi, vel flabellati, postice contracto, quandoque scutati, radiato, rugoso, lineato-zonato (20-25 c.m. diam.) cervino; margin tenui, crispulo vel sublobato. Hymenio alutaceo, lamellis radiantibus, furcatis, latis, sæpe anastomosantibus, dessepimentis tenuibus, rigidis, lacerato-dentatis.

On trunks. Rangoon, Andaman Islands.

Resembling *D. aulacophylla*, B., but thinner.

**Dædalea Andamanni, Berk. in Herb.**

Pileus coriaceous, coarsely strigose with flattened branched and serrate laminæ, soft, brownish, fawn-colour (1-2 in. diam.), broadly effused behind and confluent, forming large resupinate patches (6-8 in. diam.), pores sinulose, crowded, narrow, with thin dessepiments, at length torn.

On trunks. Andaman Islands, Perak.

**Dædalea Mulleri, Berk. (nec *Trametes Mulleri*, B.)**

Pileus corky, rather thick, convex, narrowed behind, without zones, rugose or tuberculate, smooth, whitish (7-8 c.m. broad), margin rather acute, hymenium pale tan-colour, gills rather crowded, broad, thin, acute, forked and anastomosing, here and there porose, then parallelly sinulose.

On trunks. Victoria.

## LACHNOCLADIUM.

It seems remarkable to those unacquainted with his own occult reasons, wherefore Saccardo has removed this genus from its manifest affinities in *Thelephorei* and placed it with *Clavaria*, with which, on the other hand, it has no relationship, except that of external form. Obviously the lateral hymenium, coriaceous substance, and dry persistent form, brings it into proximity with *Thelephora*, from some species of which *Lachnocladium* is scarcely separated. Surely it cannot consistently be maintained in *Clavariæi*.

## NEW OR IMPERFECTLY KNOWN GASTROMYCETES.

By G. MASSEE.

***Mutinus proximus*, Berk. in Herb.**

Entire fungus, 3-5 m.m. high; stem white, slender, wall with a single layer of cavities, externally alveolate; sporiferous portion about 4 m.m. long, subglobose, apex obtuse, imperforate, orange-red, and covered with olive mucus; spores colourless, elliptic-oblong,  $3 \times 1 \mu$ ; volva ample, springing from cord-like white strands of mycelium.

On the ground. Peradenia, Ceylon. (Type in *Herb. Berk.*, Kew.)

***Lysurus Gardneri*, Berk. Hook. Lond. Journ. Bot., 1846, p. 535, t. xvii.**

Berkeley, in describing the present species, says that the vertical lobes bearing the hymenium are united at the tips, and on this account the species has been removed to the genus *Colus*, by Fischer; but in reality the segments are not organically united at the tips, but during the young stage are closely pressed together, and having been dried in this condition appear to be united; however, when the mucilage is moistened the tips are found to be quite free, and are normally so in several out of the twenty-three specimens from Gardiner in the Kew Herbarium. The above is an average illustration as to how synonyms originate, i.e., by manipulating descriptions and not specimens, which, however, answers the desired object, that of enabling the manipulator to bracket the founder's name and bring his own to the front.

Syn., *Colus Gardneri*, E. Fischer, in *Sacc. Syll.*, Vol. vii., Pt. i., N. 63.

***Cyathus Colensoi*, Berk. Fl. Tasm. II., p. 192.**

Densely crowded, cyathiform or subcylindrical, up to 1 c.m. high, wall thin, flexible, externally densely crowded with ochraceous-brown shaggy tomentum, becoming smooth with age, inside perfectly smooth and even, brownish; sporangiola blackish when mature, 2 m.m. diameter; spores colourless, elliptical,  $8 \times 5 \mu$ .

On the ground. New Zealand. (Type in *Herb. Berk.*, Kew.)

***Crucibulum simile*, Mass., n. sp.**

Crowded or usually scattered, subcylindrical, 6-7 m.m. high, becoming bell-shaped, and with the margin of the mouth revolute, externally densely covered with a very short, dull orange tomentum, internally whitish, smooth, even; sporangiola biconvex, white, 1 m.m. diameter; spores colourless, subglobose, small,  $4 \times 3 \mu$ .

On bark and wood. New Zealand, and Australia. (Type in *Herb. Kew.*)

Superficially resembling *Crucibulum vulgare*, but distinguished by the very much smaller and differently shaped spores.

**Tulostoma Wrightii, Berk. in Herb.**

Stem 6 c.m. high, 4 m.m. thick, hollow, equal, ochraceous, even, glabrous; peridium spherico-depressed, 2 c.m. broad, minutely umbonate, pale, ochraceous, glabrous, the wall of the umbo disappears at maturity and forms a small circular stoma; mass of spores yellowish-brown; threads of capillitium hyaline, thick-walled, aseptate, equal, very long, branched, axis lunate, 5  $\mu$  diam.; spores globose, pale yellow-brown, minutely warted, 5-6  $\mu$  diameter.

On the ground. Rio Grande, North Mexico. (Wright). (Type in Herb. Berk.)

Distinguished from *Tulostoma Myenianum* in the entire mouth and the hollow, even and not striated stem.

**Tulostoma album, Mass., n. sp.**

Stem 1-5 c.m. high, .5 m.m. thick, ochraceous, longitudinally wrinkled; peridium globose, minutely umbonate, white, glabrous and shining; mass of spores ochraceous-cinnamon; capillitium dense, threads hyaline, thick-walled, often branched, axis lunate, aseptate, variable in thickness, from 8-12  $\mu$ ; spores yellow-brown; globose, coarsely warted, 10-11  $\mu$  diameter.

On the ground. Israelite Bay, W. Australia. (Type in Herb., Kew.)

Resembling *Tulostoma brachypus* in habit, but differing in the pure white peridium and the small stoma with an entire margin.

**Hydnangium nigricans, Kalchbr. (omitted from Saccardo), described in *Grevillea*, Vol. x., p. 107.****Hydnangium Tasmanicum, Kalchbr. in Herb.**

Subglobose, 2-5 c.m. diameter; peridium thick, dark brown, rugulose when dry, sterile base entirely absent, cells of the gleba large, irregularly angular, 1-2 m.m. in diameter, septa thick, ochraceous, not splitting; basidia clavate, tetrasporous, sterigmata short, spores globose, brown, episporule thickly covered with large, irregular warts, 13-14  $\mu$  diameter.

On the ground. Tasmania. (Specimen from Kalchbrenner in Herb., Kew.)

**Secotium leucocephalum, Mass., n. sp.**

Small; stem 1-2 c.m. long, 3 m.m. thick, solid, equal, white, even, continued through the gleba as a columella that expands at the apex into the wall of the peridium, and gives off laterally several white branched plates; peridium hemispherical, umbilicate below, 1.5-2 c.m. across, white, smooth, even, becoming contracted and corrugated when dry; gleba orange brown, cells subequal, small, irregularly angular, septa thin; basidia broadly clavate, tetrasporous, sterigmata very slender, elongated, spores broadly elliptical, apiculate, distinctly warted, yellow-brown, 8  $\times$  5  $\mu$ .

On the ground. New Zealand. (Type in Herb., Kew.)

Readily distinguished from all known species by the white stem and peridium, and the broadly elliptical warted spores.

***Secotium Gunnii*, Berk. in Herb.**

Small; stem slender, 1·5 c.m. high, 3 m.m. thick, solid, equal or slightly incrassated downwards, pale brown, passing through the gleba as a columella and expanding at the apex into a thick wall; peridium 1·5 c.m. across, subglobosé, deeply umbilicate below, pale brown, smooth; flesh of stem and wall of peridium whitish; gleba brown, cells small, irregularly polygonal; basidia clavate, tetrasporous, sterigmata very slender, elongated, spores obliquely elliptical, tips acute, smooth, pale reddish-brown,  $7 \times 4 \mu$ .

On the ground. Sulphur Springs, New Zealand. (Gunn.)  
(Type in Herb. Berk., Kew.)

***Secotium erythrocephalum*, Tul.**

Basidia cylindraceo-clavate, tetrasporous, sterigmata slender, elongated, spores elliptic-oblong, smooth, apiculate, pale yellow-brown,  $10-11 \times 5 \mu$ .

***Gyrophragmium Texense* (B. & C.), Mass.**

Stem erect, 7-8 c.m. high, lower half incrassated and enclosed in an adnate volva that becomes free and fibrillose at the margin, solid, attenuated above the volva and expanding at the apex into the thick wall of the peridium, which is at first continuous with the volva, eventually breaking away in a circumscissile manner and forming an agaric-like pileus; trama consisting mostly of parallel lamelliform plates, rarely anastomosing laterally; lamellæ crowded, almost free from the stem or columella, about 1 c.m. deep, basidia clavate, tetrasporous, sterigmata very slender, elongated; spores cinereous-brown, subglobose, episporic thick, smooth,  $4 \mu$  diameter.

*Secotium Texense*, B. & C., N. Amer. Fungi, Grev., Vol. ii., p. 34; Sacc. Syll., vii., Pt. i., No. 148.

On the ground: W. Texas. (Capt. Pope.) (Type in Herb. Berk., Kew, No. 4416.)

The present species closely resembles *Gyrophragmium Delilei*, Mont., and as a genus is distinguished from *Secotium* by the peridium breaking away from an outer portion of the stem that remains as a volva, and in the gleba having its septa arranged in a lamelliform manner instead of anastomosing to form an irregularly cavernous structure.

***Calostoma æruginosa*, Mass., n. sp.**

Exoperidium even, becoming broken up into small, irregular and verdigris-green squamules; endoperidium subglobose, dingy green, 1-1·5 c.m. diameter, ostiolum red inside, margins of the 5 suberect, acute teeth, orange; spore-sac pale; spores elliptical, warted, pale yellow,  $12 \times 6 \mu$ ; stem-like base, irregularly lacunose, dirty brown, 4-6 c.m. long.

On the ground. Beenak, Victoria, Australia. (Type in Brit. Mus.)

Considered by the late Mr. Broome to be identical with *Calostoma* (= *Mitremyces*) *viridis*, B., with which the present plant agrees in

colour, but is altogether much more slender, and at once recognized by the elliptical spores.

**PROTOGLOSSUM**, *Mass., nov. gen.*

Subterranean ; peridium elongated, cylindrical, vertical, sometimes attenuated at the base into a very short stem-like portion, that is continued for a very short distance up the peridium as a rudimentary columella ; peridium thick, continuous, indehiscent ; gleba broken up into minute, irregularly angular or sinuous cavities, septa thick, firm, persistent, not splitting ; basidia clavate, constantly bisporous, sterigmata rather thick, divergent, spores coloured.

Somewhat allied to *Cauloglossum*, but distinguished by being subterranean at maturity, the absence of a stem, columella rudimentary, bisporous basidia, and peridium not becoming broken up at maturity.

The present genus forms a transition from the truly subterranean genera, which it resembles in the large ornamented spores, and the above-ground forms, where the sterile base or columella becomes differentiated into a stem, as in *Secotium* and *Gyrophragmium*, and the spores become much smaller for the purpose of facilitating their dispersion by wind.

**Protoglossum luteum**, *Mass., n. sp.*

Peridium cylindrical, 5 c.m. high by 2 c.m. broad, growing vertically, with the extreme apex appearing above ground, and of an orange colour, the subterranean portion yellowish, smooth, even ; cavities of gleba about 1 m.m. diameter ; spores globose, orange-brown, episporic raised into prominent flattened ridges, that anastomose to form a polygonal network, 14  $\mu$  diameter.

Clarendon, Victoria, Australia. (Type in Herb., Kew.)

"In rich black mould, only mere trace of top above ground, orange-yellow, no stem."

**GYMNOGLOSSUM**, *Mass., nov. gen.*

Peridium entirely absent at every stage, the gleba consequently naked, subcylindrical, attenuated upwards, broken up throughout its entire substance into numerous large, irregular cavities, lined with large, clavate tetrasporous basidia, sterigmata elongated, slender, spores coloured ; stem distinct, elongated, solid, passing up into the gleba for about half its height as a central columella.

Distinguished from *Protoglossum*, *Chainoderma*, and *Cauloglossum* by the absence of a peridium at every stage of development, and also from the two last-named genera in the columella not reaching the apex of the gleba. Agrees with *Gautieria* in the absence of a peridium, but separated by the elongated gleba supported on a distinct stem, that enters for some distance as a columella, and in the tetrasporous basidia.

**Gymnoglossum stipitatum**, *Mass., nov. sp.*

Gleba obtusely conical, irregularly undulated and lacunose, pale brown, 5 c.m. high, 2 c.m. broad, stem about 1.5 c.m. high, 3-4 m.m.

thick, solid, whitish within, pale brown externally, continuing for about two-thirds the height of the gleba as a subflexuous columella; external cavities of gleba sterile, inner irregularly angular or flexuose, lined with basidia, spores elliptical, ends acute, smooth, olive-brown,  $10 \times 6 \mu$ .

On the ground. Moonan Brook, New South Wales. (Miss Carter.) (Type in Herb., Kew.)

An examination of the type specimen of *Sphaericeps lignipes*, Welw. and Curr., shows that this species is a typical *Battarrea*, hence the genus *Sphaericeps* must sink. The spores are sub-globose, yellow-brown, and distinctly warted,  $7-8 \mu$  diameter; the short elaters are equal in diameter to the spores, and contain annular or spiral thickenings.

## TRAMETES AND ITS ALLIES.

By M. C. COOKE.

The genus *Trametes*, as interpreted by Saccardo in his "Sylloge" (vi., 334), seems to require some little rectification, and first, by the isolation of those aberrant forms for which we have already proposed the genus *Sclerodepsis*. (See "Grevillea," xix., p. 49.)

### **SCLERODEPSIS. Cooke.**

- Sclerodepsis Berkeleyi**, Cooke Grev. xix., p. 49. Sacc. Syll. 6209
- Sclerodepsis colliculosa** (Berk.), Sacc. Syll. 6237.
- Sclerodepsis lobata** (Berk.), Sacc. Syll. 6208.
- Sclerodepsis Beyrichii** (Fries), Sacc. Syll. 6201.
- Sclerodepsis laeticolor** (Berk.), Sacc. Syll. 6191.

These are separated on account of the acute edge of the pileus, the acute dissepiments of the pores, which are sometimes toothed, characters incompatible with *Trametes*.

The residue of the genus would stand in something like the following relationship, although a few of the enumerated species are unknown to us:—

### **TRAMETES. Fries.**

#### A. SCUTATÆ. Postice basi scutata, substipitatae.

- Trametes expallens**, Fries. Sacc. Syll. 6160.
- Trametes centralis**, Fries. Sacc. Syll. 6161.
- Trametes elegans**, Spreng. Sacc. Syll. 6162.
- Trametes marchionica**, Mont. Sacc. Syll. 6163.
- Trametes rhizophoræ**, Reich. Sacc. Syll. 6164.
- Trametes glabrescens**, Berk. Sacc. Syll. 6165.
- Trametes crenulata**, Berk. Sacc. Syll. 6167.

**Trametes sagreæana**, Mont. Sacc. Syll. 6168.

**Trametes Hookeri**, Berk. Sacc. Syll. 6169.

**Trametes phellina**, Berk. Sacc. Syll. 6170.

B. SESSILES, Fries. *Omnino apodes, dimidiatae, crasso, suberoso.*

\* *Contextu albo.*

**Trametes gibbosa**, Pers. Sacc. Syll. 6172.

**Trametes rubescens**, Fries. Sacc. Syll. 6173.

**Trametes Bulliardii**, Fries. Sacc. Syll. 6174.

**Trametes serialis**, Fries. Sacc. Syll. 6175.

**Trametes suaveolens**, Fries. Sacc. Syll. 6177.

**Trametes inodora**, Fries. Sacc. Syll. 6179.

**Trametes ludificans**, Cesati. Sacc. Syll. 6180.

**Trametes Mulleri**, Berk. Sacc. Syll. 6181.

**Trametes Kalchbrenneri**, Fries. Sacc. Syll. 6211.

**Trametes sprucei**, Berk. Sacc. Syll. 6185.

**Trametes lactea**, Fries. Sacc. Syll. 6186.

**Trametes incana**, Lev. (?) Sacc. Syll. 6187.

**Trametes heteromalla**, Cooke. Sacc. Syll. 6188.

**Trametes glaberrima**, Berk. & Rav. Sacc. Syll. 6375.

**Trametes hololeuca**, Kalch. Sacc. Syll. 5689.

**Trametes ochroleuca**, Berk. Sacc. Syll. 5236 = *Polyporus Brisbanensis*, Berk. *Polyporus havanensis*, B. & C. Sacc. Syll. 5242.

The only observations on this section would be as to the exclusion of *T. dermatodes*, Lev. (No. 6176), which is only a synonym of *Hexagonia sericea* (No. 6306), and not a good *Hexagonia*, but *Polystictus (Stuposi)*, near 5704.

*Trametes pura*, B. & C., Sacc. Syll. 6182, is not a *Trametes*, but a *Polyporus (Anodermei)* of the section *Molles*.

*Trametes ambigua*, Berk., Sacc. Syll. 6184, should be retained as a *Dædalea*.

*Trametes versiformis*, B. & Br., Sacc. Syll. 6183, is subresupinate, and must find a place further on, as it has no affinities here.

*Trametes socotrana*, Cooke, Sacc. Syll. 6189, as well as *Trametes tristis*, Lev., Sacc. Syll. 6166, may be sought in *recedentes*.

*Trametes Trogii*, Berk., Sacc. Syll. 6171, is more in character with some other coriaceous species, allied to *Polystictus*, and should be associated with them.

\*\* *Contextu pallido, ochroleuco, vel lignicolori.*

**Trametes ochroflava**, Cooke. Sacc. Syll. 6247.

**Trametes devexa**, Berk. Sacc. Syll. 6197.

**Trametes ohiensis**, Berk. Sacc. Syll. 6198.

**Trametes conchata**, Berk. Sacc. Syll. 6193.

**Trametes Peckii**, Kalch. Sacc. Syll. 6194.

**Trametes lactinea**, Berk. Sacc. Syll. 6204.  
**Trametes laevis**, Berk. Sacc. Syll. 6205.  
**Trametes Dickinsii**, Berk. in Herb.  
**Trametes suberosa**, Quel. Sacc. Syll. 6210.  
**Trametes rugosa**, Berk. & Br. Sacc. Syll. 6250.  
**Trametes scrobiculata**, Berk. Sacc. Syll. 6249.

The remaining species included by Saccardo in this section may be thus disposed of. *Trametes mexicana*, B. & C., and *Trametes zebrina*, Fr., have the substance too dark for this group.

*Trametes Cookei*, Sacc. Syll. 6202, is evidently an error, as it is not a true *Trametes*, and has already appeared under *Polystictus*, in its proper place, as *Polystictus acuta*, No. 5702.

The two species, *Trametes paleacea*, Fries, and *Trametes immutata*, Berk., would go into *recedentes*.

The remaining *T. vittata*, Lev.; *T. tegularis*, Lev.; *T. aphano-poda*, Reich., and probably *T. bicolor*, Berk., are coriaceous.

*Trametes limitata*, Berk., Sacc. Syll. 6207, is a *Polystictus* of the section *Scortei*.

The following will stand as the description of—

**Trametes Dickinsii**, Berk. in Herb.

Pileo suberoso-lignoso, semi-orbiculari, pruinoso, cervino (8 × 5 c.m.), sulcato-zonato, subtiliter rugoso, demum glabratu, contextu cervino, roseatincto; poris subangulatis, mediis ( $\frac{1}{2}$ - $\frac{3}{4}$  m.m. diam.), dissepimentis crassiusculis, rigidis.

On trunks. Japan.

\*\*\* Contextu fusco vel fulvo-ferrugineo.

a. HYDNOIDEI. • *Pileo strigoso*.

**Trametes hydnoides**, Sw. Sacc. Syll. 6219.  
**Trametes Feathermanni**, Rav., Sacc. Syll. 6225, only a form of *T. hydnoides*.  
**Trametes hystrix**, Cooke. Sacc. Syll. 6223.  
**Trametes fibrosa**, Fries. Sacc. Syll. 6220.  
**Trametes crassa**, Lev. Sacc. Syll. 6226.  
**Trametes Klotschii**, B. Sacc. Syll. 6277.  
**Trametes ocellata**, Berk. Sacc. Syll. 6227.  
**Trametes adelphica**, Cooke.

b. HISPIDI. *Pileo, hispido, velutino*.

**Trametes hispida**, Bagl. Sacc. Syll. 6216.  
**Trametes hispidula**, Berk. & Curt. Sacc. Syll. 6235.  
**Trametes pyrrhocreas**, Berk. Sacc. Syll. 6241.  
**Trametes Burchelli**, Berk.  
**Trametes protracta**, Fries. Sacc. Syll. 6217.  
**Trametes abietis**, K. Sacc. Syll. 6218.  
**Trametes gallica**, Fries. Sacc. Syll. 6215.

**Trametes fuscella**, Lev. Sacc. Syll. 6222.  
**Trametes mæsta**, Kal. Sacc. Syll. 6231.  
**Trametes acuta**, Lev. Sacc. Syll. 6232.  
**Trametes captiosa**, Mont. Sacc. Syll. 6236.  
**Trametes aurea**, Berk. Sacc. Syll. 6246.  
**Trametes mexicana**, Berk. & Curt. Sacc. Syll. 6196.  
**Trametes odorata**, Wulf. Sacc. Syll. 6214.  
**Trametes Wahlbergii**, Fr. Sacc. Syll. 6244.  
**Trametes pertusa**, Fries. Sacc. Syll. 6245.  
**Trametes Moritziana**, Lev. Sacc. Syll. 6253.  
**Trametes umbrina**, Fries. Sacc. Syll. 6242.  
**Trametes scleromyces**, Berk. Sacc. Syll. 6255.

In this group *Trametes helvola*, Fries., Sacc. Syll. 6233, was already entered as *Polystictus helvolus*, Fries., Sacc. Syll. No. 5720.

*Trametes cognata*, Berk., Sacc. Syll. No. 6234, is also *Polystictus (Coriacei)*, and must be deleted.

c. *Pileo pruinoso, subglabro.*

**Trametes pini**, Fr. Sacc. Syll. 6213.  
**Trametes Guyoniana**, Mont. Sacc. Syll. 6238.  
**Trametes kansensis**, Crag. Sacc. Syll. 6239.  
**Trametes fusca**, Lk. Sacc. Syll. 6221.  
**Trametes oethalodes**, Mont. Sacc. Syll. 6230.  
**Trametes incondita**, Fr. Sacc. Syll. 6248.  
**Trametes erubescens**, Schulz. Sacc. Syll. 6252.  
**Trametes purpurea**, Cooke. Sacc. Syll. 6254.  
**Trametes zebra**, Fries. Sacc. Syll. 6195.

\*\* *Contextu rubro.*

**Trametes punicea**, Fries. Sacc. Syll. 6258.  
**Trametes aurora**, Cesati. Sacc. Syll. 6259.

*Trametes cinnabarina* (Fr.), Sacc. Syll., 6257, already appears as *Polystictus cinnabarina*, Sacc. Syll., 5711, and is therefore excluded.

c. INODERMEI. *Pileo coriaceo, tenui.*

**Trametes tristis**, Lev. Sacc. Syll. 6166.  
**Trametes Trogii**, Berk. Sacc. Syll. 6171.  
**Trametes bicolor**, Berk. Sacc. Syll. 6190.  
**Trametes vittata**, Lev. Sacc. Syll. 6192.  
**Trametes tegularis**, Lev. Sacc. Syll. 6203.  
**Trametes aphanopoda**, Reich. Sacc. Syll. 6212.  
**Trametes actinopila**, Mont. Sacc. Syll. 6229.  
**Trametes epitephra**, Berk. Sacc. Syll. 6240.  
**Trametes scalaris**, Fries. Sacc. Syll. 6243.

We have affirmed elsewhere that even upon the authority of the Rev. M. J. Berkeley, the species described as *Polyporus isidioides*, B., cannot be maintained as distinct from *Polyporus scruposus*. If such were not the case it could not rest as a *Trametes* in Sacc. Syll. 6228, and again as a *Polyporus* in Sacc. Syll. No. 5131. It has no claim to be regarded as a *Trametes*.

*Trametes Petersii*, Berk. & Curt., Sacc. Syll. 6250, is rather *Fomes (Lævigati)* than *Trametes*.

d. RECEDENTES. *Dissepimentis tenuibus, scissilis.*

**Trametes socotrana**, Cooke. Sacc. Syll. 6189.

**Trametes paleacea**, Fries. Sacc. Syll. 6206.

**Trametes immutata**, Berk. Sacc. Syll. 6207.

C. PLACODERMA, Fr. *Pileo crusta laccato tecto.*

**Trametes skeleton**, Fr. Sacc. Syll. 6260.

**Trametes sclerodermea**, Fr. Sacc. Syll. 6261.

**Trametes balanina**, Fr. Sacc. Syll. 6262.

D. SUBRESUPINATÆ. *Pileo subresupinato.*

**Trametes versiformis**, B. & Br. Sacc. Syll. 6183.

**Trametes sepium**, Berk. Sacc. Syll. 6200.

**Trametes gausapata**, Berk. & Rav. in Herb.

**Trametes zollingerina**, Lev. Sacc. Syll. 6224.

**Trametes incerta**, Curr. Sacc. Syll. 6256.

**Trametes mollis**, Fries. Sacc. Syll. 6264.

**Trametes hexagonoides**, Fries. Sacc. Syll. 6263.

**Trametes epilobii**, Karst. Sacc. Syll. 6265.

**Trametes isabellina**, Fr. Sacc. Syll. 6266.

**Trametes serpens**, Fr. Sacc. Syll. 6267.

**Trametes campestris**, Quel. Sacc. Syll. 6268.

**Trametes serena**, K. Sacc. Syll. 6269.

**Trametes Terreyi**, B. & Br. Sacc. Syll. 6270.

**Trametes dædalioides**, Klot. Sacc. Syll. 6408.

**Trametes purpurascens**, B. & Br. Sacc. Syll. 6271.

**Trametes dibapha**, Berk. Sacc. Syll. 6272.

**Trametes Curreyi**, Cooke. Sacc. Syll. 6273.

The description of *Trametes gausapata*, B. & R., does not appear to have been published.

**Trametes gausapata**, Berk. & Rav. in Herb.

Pileo basi effusis, reflexis, plerumque resupinatis, confluentibusque, velutinis, zonatis, tabacinis, coriaceis (1 unc. lat.) contextu fusco ; hymenio pallide umbrino ; poris demum angulatis, subacutis ( $\frac{1}{2}$  m.m. diam.).

On trunks. United States, Madagascar, Australia.

**Trametes Burchelli**, Berk. in Herb.

Pileo suberoso-molli, velutini-villoso, convexo, lateraliter extenso, confluente, umbrino-fulvo, pallescente (3-5 unc. long, 1 unc. lat.),

sæpe scruposo, contextu umbrino; tubulis elongatis (1 c.m.); poris angulatis, magnis (1-2 m.m.) pallide umbrinis, dissepimentis crassis.

On trunks. Brazil, Pegu.

**Trametes adelphica, Cooke.**

Pileo suberoso, subtenui, reniformi, applanato, vix zonato, nigro-fusco (3-10 c.m. diam.) setis rigidis, compressis, atrofuscis strigoso, margin acuto, glabrescente, intus ferrugineo-fusco; poris profundis (ad. 1 c.m. longis) subhexagonis, intus glaucescentibus (1 m.m. diam.). *Hexagonia strigosa*, Cke. in Herb.

On trunks. Madagascar, Isle of Reunion.

**HEXAGONIA. Fries.**

We fail to discover any good reason why the stipitate species of *Hexagonia*, such as *H. gracilis*, were not worthy of a separate section, as in other genera.

Spagazzini has included in his "Fungi Guaranitica" (ii., p. 15) *Hexagonia versicolor*, Fries, which we do not discover in Saccardo, nor have we as yet found a species under that name described by Fries.

*Favolus transiens* (*Cesati*), in *Sacc. Syll.* No. 6483, is certainly not a *Favolus*, but *Hexagonia*, according to specimen from Cesati in Herb. Kew.

The following species do not appear to have been described hitherto, although for a long time known from specimens:—

**Hexagonia lævis, Berk. in Herb.**

Pileo carnososo-suberoso, orbiculato, aut reuniformi (8 c.m. long) lævi, cervino, opaco, pruinoso, circa marginem depresso-zonato; alveolis profundis, magnis, irregulariter angulatis, subhexagonis (2-4 m.m. diam.) canescensibus, dissepimentis crassiusculis.

On trunks. Andaman Islands.

**Hexagonia tenuis, Hook. Sacc. Syll. 6324.**

var. **subtenuis, Berk. in Herb.**

This, which stands in Herb. Berk. as *Hexagonia subtenuis*, is hardly distinguishable from *H. tenuis*, except that the alveoli are doubly as broad ( $1\frac{1}{2}$ -2 m.m.).

Central America, Australia, Mauritius, Nilgherries (India).

**SOME OMITTED DIAGNOSES.**

**Agaricus (Inocybe) sabuletorum, Berk. & Curt. (No. 857).**

Pileo carnosulo, convexo, applanato, tenui, sericeo, umbrino, (1 c.m. diam.), stipite gracili, aequali (2 c.m. long), concolori, glabro, lamellis lanceolatis, adnatis, vix confertis, umbrinis. Sporis angulatis, 12  $\mu$  long. Cystidiis majusculis.

In sandy pine woods. Carolina (M.A.C.)

In Saccardo's Sylloge the following species require correction:—

**Hebeloma psamminum**, *Sacc. Syll.* 3297, should be *Inocybe psamminum*, Berk.

**Hebeloma micropyramis**, *Sacc. Syll.* 3269, should be *Inocybe micro-pyramis*, B & Br.

**Hebeloma ignobilis**, *Sacc. Syll.* 3313, should be *Inocybe ignobilis*, Berk.

**Agaricus (Inocybe) holophlebius**, *Berk. in Herb.*

Pileo carnosulo, campanulato, expanso, late umbonato (3-6 c.m. diam.), floccoso-fibrilloso, cervino; stipite pallido, fareto, cylindrico, æquali (6 c.m. long, 4 m.m. thick); lamellis latis, adnatis, vix confertis, postice attenuatis, argillaceis, demum umbrinis; sporis lævibus, ellipticis,  $10 \times 6 \mu$ .

On the ground. Masulipatam, India.

**Marasmius ascophorus**, *Peck.*, has been omitted, as far as we can discover, from Saccardo's Sylloge, without explanation.

**Thelephora griseozonata**, *Cke. Rav. Fun. Amer.*, No. 444.

Cæspitosa, mollis. Pileolis imbricatis, applanatis (1-2 in.) sericeo-strigosis, zonatis; zonis cervinis, griseisque alternantibus, margine subfimbriato, badio, in stipitem sublateralem porrectis; hymenio infero purpureo-badio, rugoso; sporis subglobosis, asperulis, fuscis, 7-8  $\mu$  diam.

Ad terram. S. Carolina.

## NEW SUB-GENUS OF AGARICUS.

By M. C. COOKE.

Hitherto no instance has been recorded in the *Hyporrhodii* of the occurrence of species analogous to *Amanita* in the possession of a volva and ring. That deficiency has at length been supplied, in Australian specimens of the missing link, and we do not hesitate to adopt the same principle which has been adopted in *Leucospori*, and whilst recognizing *Volvaria* as the analogue of *Amanitopsis*, constitute *Metraria* as the true analogue of *Amanita*. The specimens were accompanied by drawings, so that an opportunity may soon arrive for us to publish a coloured figure of this new addition to the subgenera of *Agaricini*. Whether it shall hold generic or subgeneric rank is a question which we do not care to discuss, and may be left to individual opinion.

### SUB-GEN. METRARIA.

Universal veil at first continuous, distinct from the cuticle of the pileus, forming a volva at the base. Ring manifest. Spores pink.

Analogous to *Amanita*.

**Ag. (Metraria) insignis, C. & M.**

Pileus convex, then flattened, and depressed in the centre (10 c.m. diam.), margin cream colour, disc darker and rufescence, smooth, viscid, shining when dry. Stem solid, then hollow, 10 c.m. long,  $2\frac{1}{2}$  thick, equal, bulbous at the base, whitish, smooth, rather fibrous. Volva rather lax, ring dependent, membranaceous. Gills adnate, lanceolate, or attenuated in front, pink. Spores apiculate at the base,  $10 \times 6 \mu$ .

In woods. Lilydale, Victoria (*Martin* 561).

## FAVOLUS AND LASCHIA.

BY M. C. COOKE.

**Favolus subgelatinosus, Berk. in Herb.** 3152.

Pileo carnosso-membranaceo, flabelliformi ( $3 \times 2$  c.m.), albido, glabro, laevi, ambitu sublobato, postice in stipitem brevem attenuato; alveolis stipatis, arctissimis, radiatis, acie denticulatis, sporis albis.

On trunks. (No locality.)

A true *Favolus*, without any suggestion of the reason for the application of the name *subgelatinosus*.

**Laschia decurrens** (*Favolus decurrens, B. & C. in Herb.*)

Pileo orbiculari, pallidi (1 c.m. lat.), ad marginem in stipitem equilongam producto; poris paucis, magnis, hexagonis; dissepimentis crassis, obtusis, in stipitem decurrentibus.

On wood. Venezuela.

**Laschia viridula** (*Favolus viridulus, B. & C. in Herb.*)

Stipitata. Pileo orbiculari (1 c.m. lat.), glabro, tenui, fuligineo; stipite centrali (1 c.m. et ultra long), concolori; poris angulosis, venis radiantibus, anastomosantibus efformantibus. Hymenio subcæruleo-viridi.

On wood. Venezuela.

**Laschia flabellula** (*Favolus flabellulum, B. & C. in Herb.*)

Ochraceo. Pileo membranaceo, spathulato vel flabelliformi, minuto (3-5 m.m. long), postice in stipitem brevem attenuato, glabro, laevi. Hymenio concolori, alveolos angulosos inæquale composito.

On wood. Venezuela.

**Laschia lurida, Cesati in Mycet. Born.**

Omitted from Saccardo Sylloge.

If it is possible to maintain *Glaeoporus* as a distinct genus, some species of *Polyporus*, with a soft, subgelatinous hymenium, should be transferred to it. In addition, Berkeley has an Indian species of which we find no diagnosis.

**Glaeoporus corrugatus, Berk. in Herb.** 3048.

Pileo conchiformi, carnosso-leuto (1 unc. lat.), reticulato-rugoso, glabro, rufo-fusco, siccо corneo, obscuriore. Hymenio pallidiori; poris curtis, stipatis, rotundatis, minutis, ad marginem sterilis, initio gelatinosis.

Ad truncos. Nilgherries, 1869.

## OMITTED DISCOMYCETES.

By W. PHILLIPS, F.L.S.

**Humaria stromella**, Cke. & Phil., n.s. *Helotium strumellum*, Cke. & Phil. in *Herb. Kew.*

Gregarious, sessile or subsessile, plane, seated on a pale yellow membranaceous stroma ; hymenium immarginate, sulphureous ; exterior minutely granular, and darker in colour ; ascii cylindrical ; sporidia 8, fusoideo-elliptic,  $15-19 \times 8-9 \mu$ ; paraphyses abundant, slenderly filiform, curved, and sometimes branched at the summit.

On dead moss, leaves, sticks, etc. Winton, New Zealand (124).

The cups are  $\frac{1}{2}$  to 1 line broad ; ascii,  $180 \times 10 \mu$ . The thin stroma from which the cups arise led us at first to refer it to *Humaria carbonigena*, Berk.

**Hymenoscypha Carmichaelii** (*Berk.*), *Phil.*

Scattered or cæspitose, stipitate, cup becoming plane, margin raised, entire ; hymenium fuliginous ; stem rather long, slender, brownish, tomentose at the very base ; ascii clavate ; sporidia 8, fusiform or clavato-fusiform, guttate,  $25 \times 5 \mu$ , paraphyses slenderly filiform, numerous.

On decayed wood. Scotland (?). Capt. Carmichael.

Cups  $\frac{1}{2}$  a line broad ; rather more than a line high. Ascii  $90 \times 9 \mu$ . How far the colour may have altered by the means employed to preserve the specimen it is difficult to judge ; the dark hymenium and the brown stem give it a marked appearance. It is near *Hymenoscypha scutula* (*Pers.*).

**Hymenoscypha flexipes**, Cke. & Phil.

Scattered or cæspitose, stipitate, cups at first pyriform, then infundibuliform, margin entire, inflexed, exterior granulose, pale alutaceous, hymenium darker ; stem long, flexuous ; ascii narrowly clavate ; sporidia 8, fusiform,  $4-6 \times 1 \mu$ , paraphyses slenderly filiform.

On decorticated wood. Kew Herbarium.

Cups  $\frac{1}{4}$  to  $\frac{3}{4}$  of a line broad ;  $\frac{1}{2}$  to 1 line high. Ascii,  $35 \times 3$ .

**Helotium aurantiacum**, Cke.

Sessile or subsessile, plane, hymenium orange yellow, margin thin, erect ; ascii cylindraceo-clavate ; sporidia 6 to 8, fusiform, straight or bent, 2-5-guttulate, becoming pseudo-septate,  $14-18 \times 4-5 \mu$ , paraphyses filiform, simple, abundant.

On the underside of decayed leaves. U.S. America. J. B. Ellis, No. 75.

The cups are 1 to 2 lines broad ; ascii,  $80-100 \times 7-9 \mu$ .

**Mollisia chlorosticta, E. P. Fries.**

Scattered or gregarious, minute, cupulate, sessile, glabrous, greenish-yellow, margin prominent, entire, here and there flexuous, of the same colour; asci clavate ( $30-45 \times 6-8 \mu$ ), sporidia 8, oblong,  $2-3 \times 1 \mu$ ; paraphyses slenderly filiform.

On the inside of fallen bark of *Ulmus montana*. Upsala, 1853, E. P. Fries (No. 7786). Also inside the bark of *Acer*. Upsala, L. Romell, 1885 (No. 14).

**Lachnella luzulina, Phil.**

Occurs in Saccardo's *Syllogæ*, p. 149, as *Dasyscypha hyalina* (Phill.), Sacc. Evidently an error of transcription.

**Lachnella albopileata, Cke.****var. subaurata, Ellis.**

On both sides of the leaves of *Clethra alnifolia*, J. B. Ellis, Newfield, N.J., U.S.

The sporidia in the type are  $6-8 \times 1-5 \mu$ ; those of the variety  $5-6 \times 1 \mu$ ; and the acerose paraphyses have generally two distinct septa in them, a character rarely occurring. There is another characteristic of this plant; in the place of the hairs secreting at their tips oxalate of lime, as in *Lachnella crucifera*, *L. echinulata*, and others, a golden yellow juice is secreted, which on drying leave a yellow shining globule at the tips of the hairs. These features may well justify its elevation to specific rank.

**Lachnella conformis, Cke.**

Scattered, minute, shortly stipitate or sessile, rather cupulate, becoming plane, clothed with short, colourless, obtuse hairs, hymenium pale fawn-colour; asci cylindraceo-clavate, sporidia 8, slenderly lanceolate,  $10 \times 1 \mu$ , paraphyses slender, acerose, exceeding the asci.

On *Juncus*. Darenth. July, 1875.

Although resembling *L. apala*, the much shorter sporidia at once distinguish it.

**Encelia hypochlora, Berk. & Curt.**

Scattered, sessile, capulate, firm, sub-coriaceous, greenish-yellow, furfuraceous; hymenium dull ochraceous, asci narrowly clavate; sporidia 8, fusiform or oblongo-fusiform, straight or bent,  $10-12 \times 2-25 \mu$ ; paraphyses slenderly filiform.

On dead bark. Cuba.

Cups  $\frac{1}{2}$  to 1 line broad; asci  $60-65 \times 5-6 \mu$ . This has lain in Berkeley's Herbarium undescribed for years. Why the illustrious M. Saccardo has ignored the genus *Encelia*, Fr., it is not easy to discover; his doing so has led him to throw into *Cenangium* many heterogeneous species.

## MEMORABILIA.

**THELEPHORA PEDICELLATA**, *Schw.*—According to authentic specimens we are led to the conclusion that *Thelephora suffulta*, B. & Br., *Thelephora retiformis*, B. & C., and *Thelephora reticulata*, B. & C., are all merely forms of one and the same species known as *Thelephora pedicellata*, S.

**BRITISH EDIBLE FUNGI.**—A little volume under this title, by M. C. Cooke, with twelve coloured plates, including forty species, is now in the press, and will shortly be published at seven shillings and sixpence, by Messrs. Kegan Paul, Trench, Trubner and Co., of No. 1, Paternoster Square, E.C.

**EMERICELLA VARIECOLOR**, *B. & Br.*—On the portions of wood bearing the above fungus there is a copious development of *Inzengæa erythrospora*, Borzi, fully described and beautifully illustrated in Pringsheim's "Jahrbucher," 1885, p. 450, and again described as the type of a new genus called *Theclospora* by Harkness in "Californian Fungi," p. 21. The latter mistake was corrected in "Grevillea," 1888, p. 116; nevertheless, M. N. Patouillard, President of the Société Mycologique de France, has fallen into the error of mistaking the latter for the true *Emericella*, with which it is mixed. The author's description and figures in the "Bulletin de la Société Mycologique de France," Vol. VII., p. 45 (1891), refer entirely to *Inzengæa*. Nevertheless, the learned President has utilized this material to show that I was entirely mistaken in my ideas respecting the nature of *Emericella*.—G. M.

## ADDITIONS TO MERULIUS.

By M. C. COOKE.

**Merulius sordidus**, *Berk. & Curt.*

Sordidus, resupinato-reflexus, submembranaceous, margine sublibero; subtus sericeus, pallescens. Hymenio sordide-fusco, reticulato-poroso, plicis sinuibus, sicco vix conspicuis, sporis  $7 \times 5 \mu$ , dilute fuscis.

On wood. Venezuela.

**Merulius rimosus**, *Berk. in Herb.*

Effusus, tenuis, mollis (circa 1 unc. lat.), adnatus, margine libero, reflexo, subalutaceo; hymenio saturatiore, rimoso-diffracto, demum areolato-frustuloso, plicis tenuibus, gyrosis. Sporis minutis ( $3 \times 2 \mu$ ?).

On alder. New York, U.S. (*Ellis*, 586).

**Merulius pelliculosus, Cooke.**

Broadly effused, membranaceous, closely adnate, white, hyaline when dry, like a thin pellicle, margin naked, hymenium reticulated with shallow angular pores, scarcely visible when dry (about  $\frac{1}{2}$  m.m. diam.).

On branches of *Acacia*. Victoria. (*Mrs. Martin*, 762).

**Merulius pallens, Schwein (not of Berkeley).**

Does not appear to differ from *Merulius corium*.

**Merulius terrestris, B. & Br. (undescribed).**

Can scarcely be different from *Merulius brassicæfolius*. Schwein.

## IRPEX ADDENDA.

By M. C. COOKE.

**Irpe x decurrens, Berk. in Herb.**

Pileo effuso, reflexo, tenui, azono (1-2 c.m.), sericeo, fuligineo, siccо incurvo, postice decurrente; dentibus subulatis, acutis, elongatis, pallidioribus.

On bark. Japan. (*Dickins*, 16.)

**Irpe x crispatus, Berk. in Herb.**

Totus resupinatus, ex albo ochraceus, subiculo tenui, subarachnoideo, aculeis compressis, membranaceis, inæqualibus, crispatis, apice denticulatis.

On bark. Venezuela.

Quite different from *I. depauperatus*.

**Irpe x modestus, Berk. in Herb.**

Effusus, adnatus, umbrinus; margine indeterminato, tenuissimo, subvelutino, sinuato-poroso; dentibus confertis, compressis, breviusculis, basi conjunctis.

On bark. Mauritius.

More delicate than any form of *I. cinnamomeus*.

Berkeley includes *Polyporus candidulus*, Lev. Sacc. Syll., No. 5151, under *Irpe x* with specimens from France, but we are disposed to doubt its being a good *Irpe x*.

**Irpe x clathratus, Berk. in Herb.**

On bark from Venezuela.

Appears to be too abnormal a condition for description as a distinct species.

**Irpe x decolorans (Irpe x decolor, B. & C. in Herb.).**

Incrustans, mollis, subgelatinosus, albus, demum cartilagineus lividusque; ambitu determinato, subfimbriato; dentibus compressis, inæqualibus, sparsis; apice acutis, integris.

On rotten logs, over-running leaves, twigs, etc. Cuba, 835.

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## INDEX TO VOL. XIX.

---

	PAGE
Additions to Dædalea ...	92
Additions to Merulius ...	108
Agarics, controverted ...	30
Agaricus, new subgenus ...	104
Attractive odours ...	54
Australian Fungi ...	5, 44, 60, 81, 89
British Pyrenomycetes ...	... 12, 42
British Thelephoreæ ...	15, 25, 64
Confessions of a Mycophagist ...	67
Controverted Agarics ...	30
Cooke, M. C., African Fungi ...	6
,,     ,, Asiatic Fungi ...	7
,,     ,, Australian Fungi ...	5, 44, 60, 81, 89
,,     ,, British Fungi ...	8, 40, 86
,,     ,, Controverted Agarics ...	30
,,     ,, Cordyceps Hawkesii ...	76
,,     ,, Favolus and Laschia ...	105
,,     ,, Merulius ...	108
,,     ,, New Zealand Fungi ...	1, 47
,,     ,, N. American Fungi ...	14
,,     ,, On Metraria ...	104
,,     ,, On Sclerodepsis ...	49
Cordyceps Hawkesii ...	76
Crombie, J. M., Index Lichenum ...	57
Cryptogamic Literature ...	22, 54, 87, 110
Dædalea, additions ...	92
Diagnoses omitted ...	71, 103
Discomycetes omitted ...	106
Edible Fungi, Japanese ...	62
Emericella and Inzengæa ...	108
Favolus and Laschia ...	105
Fresh Water Algæ, Introduction...	9
Fungi, African ...	6
Fungi, Asiatic ...	7
Fungi, Australian ...	5, 44, 60, 81, 89
Fungi, Exsiccati excesses ...	78
Fungi, Japanese, edible ...	62
Fungi, New British ...	8, 40, 86

	PAGE
Fungi, New Zealand ...	1, 47
Fungi, North American ...	14
Fungi, Scandinavici ...	21
Fungi, species of ...	53
Fungus Forays, 1890 ...	21, 51
Gastromycetes, New, etc. ...	94
Hexagonia ...	103
Index Lichenum Britannicum ...	57
Introduction to Fresh Water Algæ ...	9
Irpea, addenda ...	109
Japanese Edible Fungi ...	62
Lachnocladium ...	93
Lichenum Britannicum, Index ...	57
Massee, G., British Pyrenomyces ...	12, 42
Massee, G., New Gastromycetes ...	94
Memorabilia ...	21, 53, 80, 108
Merulius, additions to ...	108
Metraria, new subgenus ...	104
Muscologia gallici ...	14
Mushrooms and Toadstools ...	83
Mycophagist, Confessions of a ...	67
New British Fungi ...	8, 40, 86
New Zealand Fungi ...	1, 47
North American Fungi ...	14
Omitted Diagnoses ...	71, 103
Omitted Discomycetes ...	106
Phalloidei, spore diffusion ...	84
Phillips, W., Discomycetes ...	106
Pyrenomyces, British ...	12, 42
Pyrenomyctum, Synopsis ...	50
Sclerodepsis, new genus ...	49
Some African Fungi ...	6
Some Asiatic Fungi ...	7
Species of Fungi ...	53
Spore diffusion in Phalloidei ...	84
Synopsis Pyrenomyctum ...	50
Thelephora pedicellata ...	108
Thelephorei, British ...	15, 25, 64
Traunites, and its allies ...	98
Two Australian Fungi ...	81

